RF MEASUREMENT REPORT

FCC ID:	P27-ES1B
Applicant:	Sercomm Corporation
Product:	ES1 (B)
Model No.:	COESST11BEI
Brand Name:	XUMO
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15 Subpart C (Section 15.247)
Result:	Complies
Received Date:	2025-06-03
Test Date:	2025-06-12 ~ 2025-06-27

Reviewed By: Vincent Yu

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
R25S1059057-U202	V01	Initial Report	2025-08-06	Valid

CONTENTS

1. General Information

1.1. Applicant

Sercomm Corporation

8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

1.2. Manufacturer

Sercomm Corporation

8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

1.3. Testing Facility

<table>
<tr><td>☒</td><td colspan="5">Test Site – MRT Suzhou Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Suzhou - Wuzhong)
D8 Building, No.2 Tian’edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Laboratory Location (Suzhou - SIP)
4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China
Laboratory Location (Suzhou - Wujiang)
Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People’s Republic of China</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="5">A2LA: 3628.01 CNAS: L10551
FCC: CN1166 ISED: CN0001</td></tr>
<tr><td></td><td>VCCI:</td><td>☐R-20025</td><td>☐G-20034</td><td>☐C-20020</td><td>☐T-20020</td></tr>
<tr><td></td><td></td><td>☐R-20141</td><td>☐G-20134</td><td>☐C-20103</td><td>☐T-20104</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Shenzhen Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Shenzhen)
1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="5">A2LA: 3628.02 CNAS: L10551
FCC: CN1284 ISED: CN0105</td></tr>
<tr><td>☐</td><td colspan="5">Test Site – MRT Taiwan Laboratory</td></tr>
<tr><td></td><td colspan="5">Laboratory Location (Taiwan)
No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)</td></tr>
<tr><td></td><td colspan="5">Laboratory Accreditations</td></tr>
<tr><td></td><td colspan="5">TAF: 3261
FCC: 291082, TW3261 ISED: TW3261</td></tr>
</table>

1.4. Product Information

Product Name	ES1 (B)
Model No.	COESST11BEI
Brand Name	XUMO
EUT Identification No.	20250603Sample#01 (Conducted) 20250603Sample#02 (Radiated)
Bluetooth Specification	V5.0 Dual Mode
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Antenna Specification	Refer to clause 1.7
Operating Temp.	0 ~ 40°C
Power Type	AC/DC Adapter
Accessories	
AC/DC Adapter #1	Brand: Netbit Model: NBC08A050150HU Input: 120V~60Hz, 0.2A Output: 5.0VDC 1.5A
AC/DC Adapter #2	Brand: LEADER Model: ML08-8050150-A1 Input: 120V~60Hz, 0.25A Output: 5.0VDC 1.5A
Note 1: The information of the EUT (Equipment Under Test) was provided by the manufacturer. The accuracy, completeness, and validity of the information are solely the responsibility of the manufacturer. Note 2: AC/DC Adapter #2 is chosen for testing after evaluation. Note 3: For more detailed features description, please refer to the manufacturer's specifications or User's Manual.	

1.5. Radio Specification under Test

Bluetooth Frequency	2402 ~ 2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	1Mbps & 2Mbps & 125kbps & 500kbps
Antenna Type	PIFA Antenna
Antenna Gain	2.94 dBi

1.6. Working Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz
39	2480 MHz	--	--	--	--

2. Test Configuration

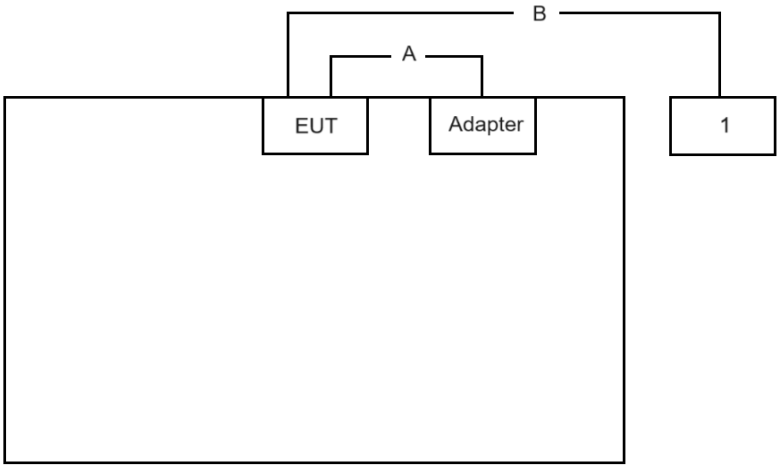
2.1. Test Mode

Mode 1: Transmit by BLE-1Mbps
Mode 2: Transmit by BLE-2Mbps
Mode 3: Transmit by BLE-125kbps
Mode 4: Transmit by BLE-500kbps

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram



Cable Type		Cable Description	Length
A	Power Cable	Non shielded	1.5m
B	LAN Cable	Non shielded, Cat.5e	> 10m
Product		Manufacturer	Model No.
1	Notebook	Lenovo	E430C

2.3. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.247
- KDB 558074 D01v05r02
- ANSI C63.10-2013

2.4. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~75%RH

3. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antenna of the device is **inbuilt antenna.**
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

4. Measuring Instrument

Instrument Name	Manufacturer	Model No.	Asset No.	Cali. Interval	Cal. Due Date	Test Site
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06648	1 year	2025-10-20	SIP-AC2
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06647	1 year	2026-05-15	SIP-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06601	1 year	2025-11-01	SIP-AC2
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2025-10-13	SIP-AC2
Signal Analyzer	Keysight	N9010B	MRTSUE06603	1 year	2025-09-05	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE06622	1 year	2025-10-29	SIP-AC2
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2025-12-19	SIP-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06598	1 year	2025-11-03	SIP-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2025-10-08	SIP-AC2
Active Loop Antenna	Schwarzbeck	FMZB 1519-60 D	MRTSUE07075	1 year	2025-11-19	SIP-AC2
Thermohygrometer	testo	608-H1	MRTSUE11022	1 year	2025-10-16	SIP-TR1
USB Power Sensor	Keysight	U2021XA	MRTSUE06596	1 year	2025-07-23	SIP-TR1
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2026-04-29	SIP-SR2
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2026-04-29	SIP-SR2
Four-Line V-Network	R&S	ENV432	MRTSUE06614	1 year	2025-10-13	SIP-SR2
Thermohygrometer	testo	608-H1	MRTSUE06621	1 year	2025-10-29	SIP-SR2
Shielding Room	MIX-BEP	SIP-SR2	MRTSUE06949	5 years	2029-10-13	SIP-SR2

Software	Version	Function
e3	230711	RE & CE
Controller_MF 7802BS	1.02	RE Antenna & Turntable
Agilent Power Analyzer/Agilent Power Panel	V R03.09.00	Power

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.

(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.58dB 150kHz~30MHz: 3.20dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Coaxial: 9kHz~30MHz: 2.35dB Coplanar: 9kHz~30MHz: 2.37dB Horizontal: 30MHz~200MHz: 3.47dB 200MHz~1GHz: 4.17dB 1GHz~40GHz: 4.97dB Vertical: 30MHz~200MHz: 4.07dB 200MHz~1GHz: 5.28dB 1GHz~40GHz: 4.84dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 2.5dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.5dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 2.5dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 3.2%

6. Test Result

6.1. Summary

FCC Section(s)	Test Description	Test Condition	Verdict
15.247(a)(2)	6dB Bandwidth	Conducted	Pass
15.247(b)(3)	Output Power		Pass
15.247(e)	Power Spectral Density		Pass
15.247(d)	Band Edge / Out-of-Band Emissions		Pass
15.205 15.209	General Field Strength (Restricted Bands and Radiated Emission)	Radiated	Pass
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	Pass

Notes:

1. The analyzer plots shown in this section were captured using a correction table to account for cable and attenuator losses in the system connecting the EUT to the analyzer across relevant frequencies.
2. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

6.2. 6dB Bandwidth Measurement

6.2.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

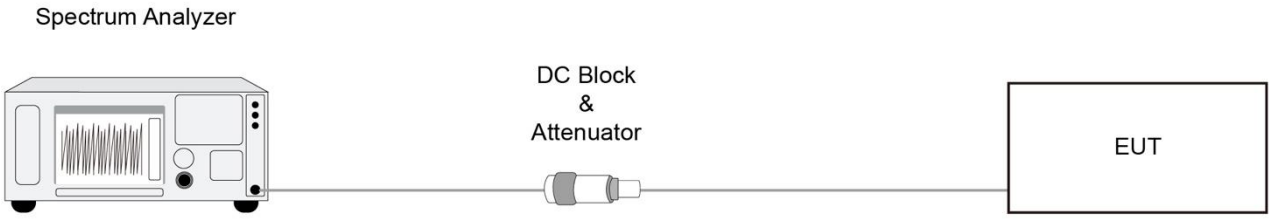
6.2.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.8

6.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize

6.2.4. Test Setup



6.2.5. Test Result

Refer to Appendix A.2.

6.3. Output Power Measurement

6.3.1. Test Limit

The maximum output power shall be less 1 Watt (30dBm).

The conducted output power limit specified in paragraph FCC Part 15.247(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC Part 15.247(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.3.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.9.1.3

ANSI C63.10 - 2013 - Section 11.9.2.3.2

6.3.3. Test Setting

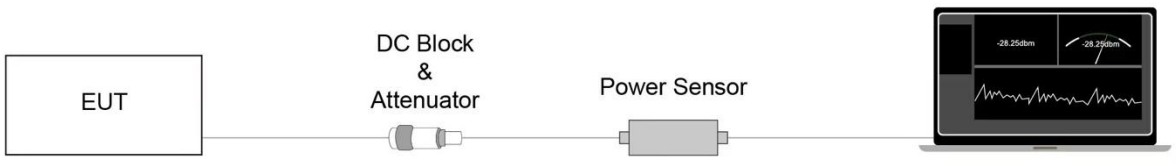
Method PKPM1 (Peak Power Measurement of Signals with DTS BW ≤ 50MHz)

Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The pulse sensor employs a VBW = 50MHz so this method was only used for signals whose DTS bandwidth was less than or equal to 50MHz.

Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

6.3.4. Test Setup



6.3.5. Test Result

Refer to Appendix A.3.

6.4. Power Spectral Density Measurement

6.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band.

The same method of determining the conducted output power shall be used to determine the power spectral density.

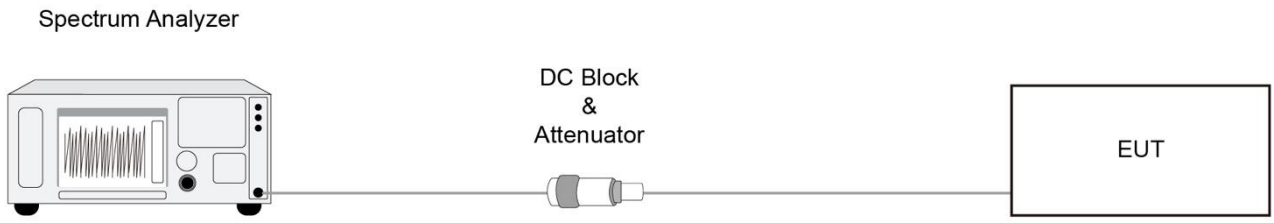
6.4.2. Test Procedure

ANSI C63.10-2013 Section 11.10.2

6.4.3. Test Setting

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 10kHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.4.

6.5. Conducted Band Edge and Out-of-Band Emissions Measurement

6.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

6.5.2. Test Procedure

ANSI C63.10-2013 - Section 11.11

6.5.3. Test Setting

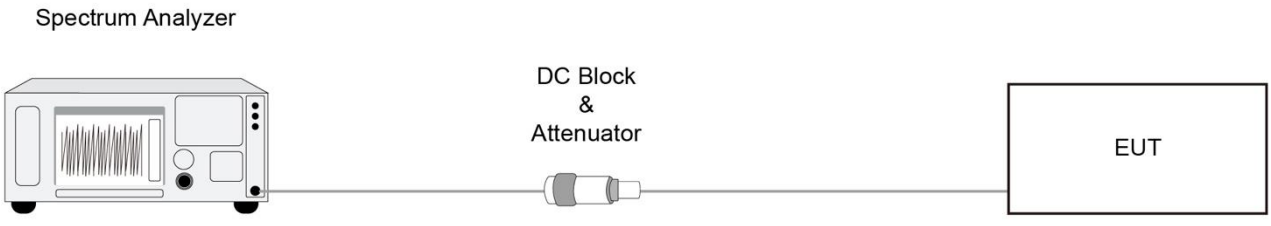
Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW ≥ 3 x RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

6.5.4. Test Setup



6.5.5. Test Result

Refer to Appendix A.5.

6.6. Radiated Spurious Emission Measurement

6.6.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.6.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.11 & 11.12

ANSI C63.10 - 2013 - Section 6.3 (General Requirements)

ANSI C63.10 - 2013 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - 2013 - Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 - 2013 - Section 6.6 (Standard test method above 1GHz)

6.6.3. Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000MHz	1MHz

Quasi-Peak Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as specified in Table 1
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Peak
5. Sweep time = Auto couple
6. Trace mode = Max hold
7. Trace was allowed to stabilize

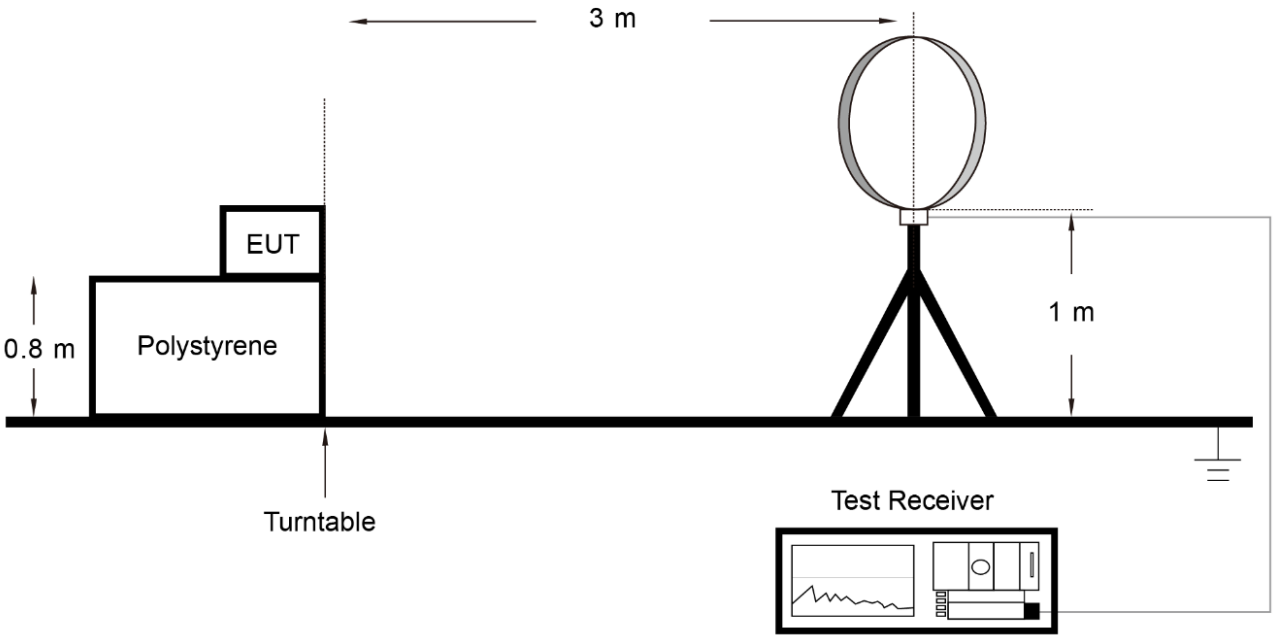
Average Measurements above 1GHz (Method VB)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; if the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10Hz

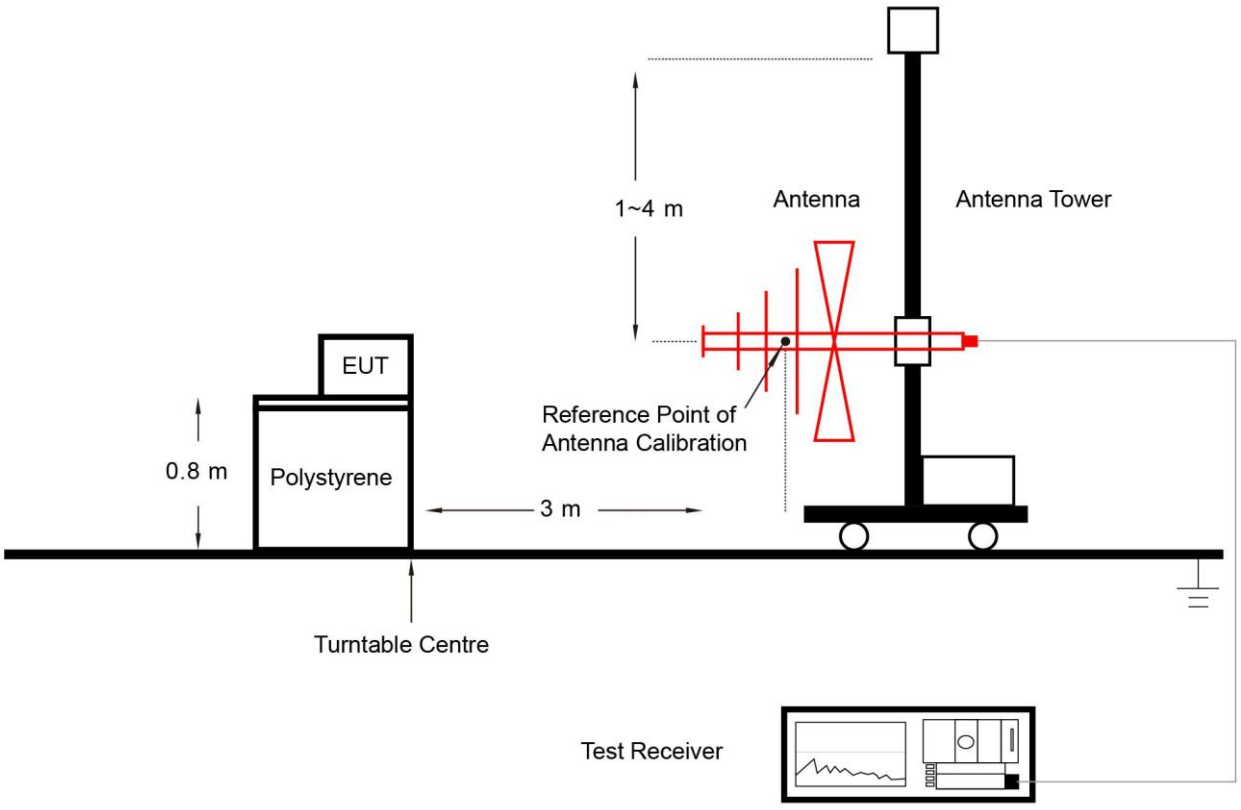
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to “Voltage” regardless of the display mode
5. Detector = Peak
6. Sweep time = Auto
7. Trace mode = Max hold
8. Trace was allowed to stabilize

6.6.4. Test Setup

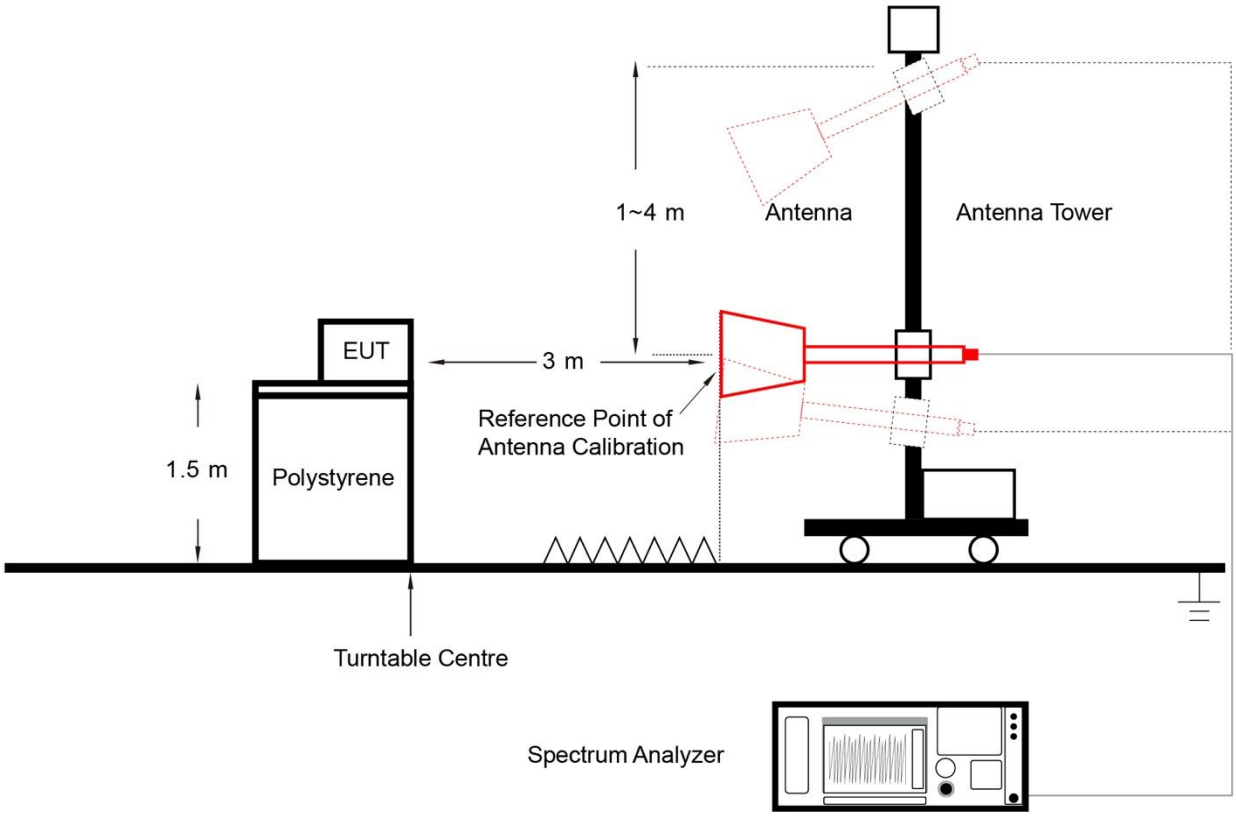
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.6.5. Test Result

Refer to Appendix A.6.

6.7. Radiated Restricted Band Edge Measurement

6.7.1. Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1] 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

6.7.2. Test Procedure

ANSI C63.10-2013 Section 6.3 & 6.6 & 11.13

6.7.3. Test Setting

Peak Field Strength Measurements

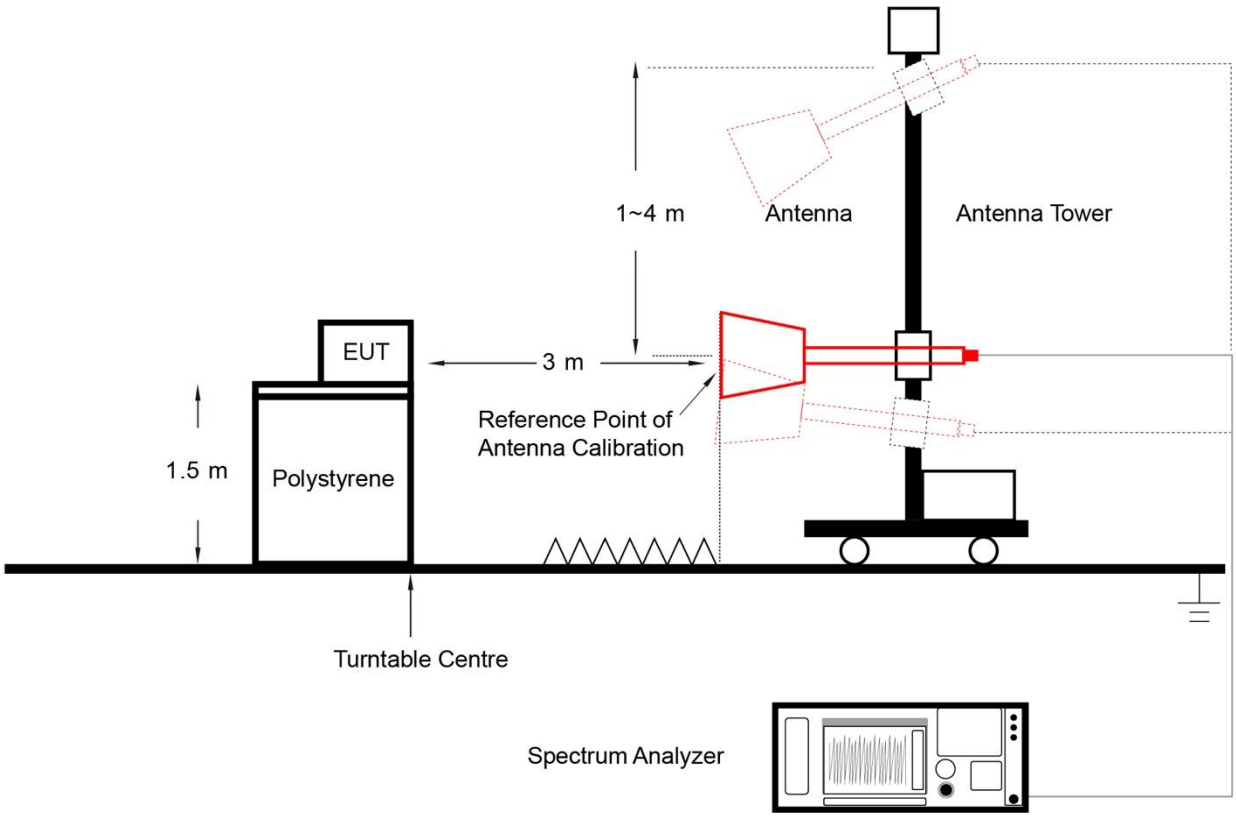
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle ≥ 98%, set VBW = 10 Hz.

   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode
5. Detector = Peak
6. Sweep time = auto
7. Trace mode = max hold
8. Allow max hold to run for at least 50 times (1/duty cycle) traces

6.7.4. Test Setup



6.7.5. Test Result

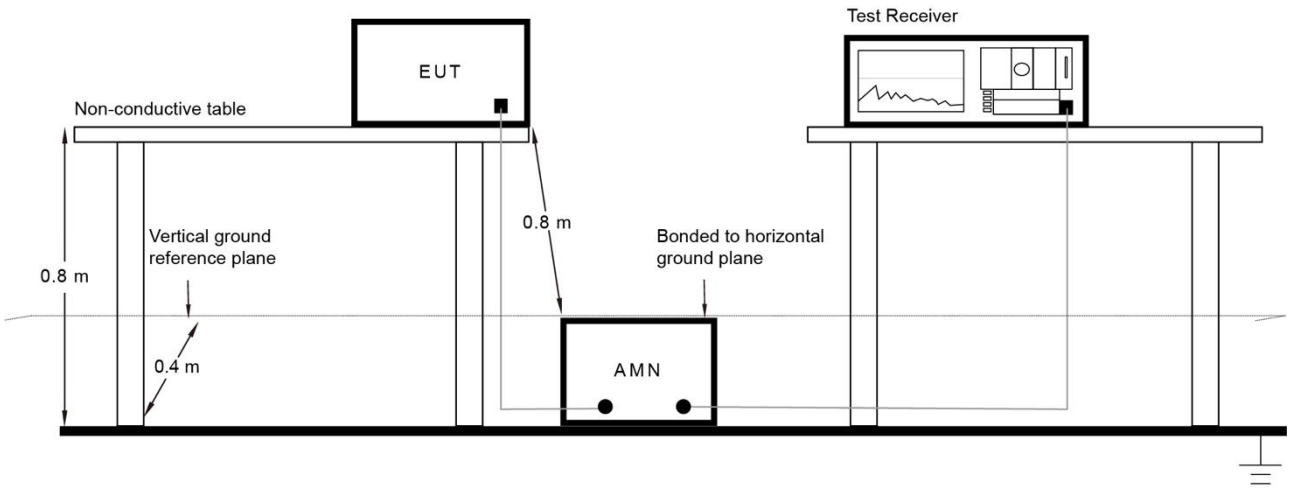
Refer to Appendix A.7.

6.8. AC Conducted Emissions Measurement

6.8.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

6.8.2. Test Setup



6.8.3. Test Result

Refer to Appendix A.8.

Appendix A - Test Result

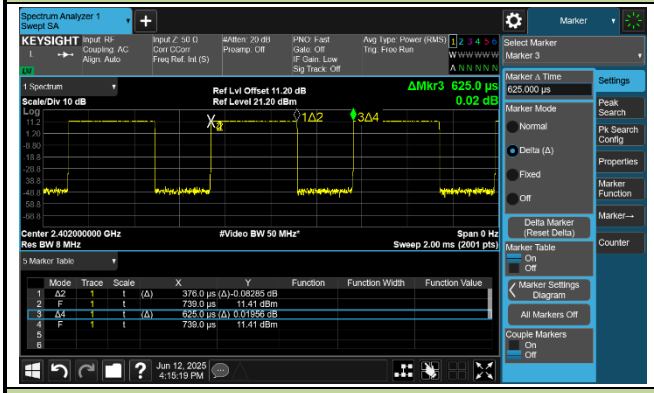
A.1 Duty Cycle Test Result

Test Site	SIP-TR1	Test Engineer	Alan Yu
Test Date	2025-06-12		

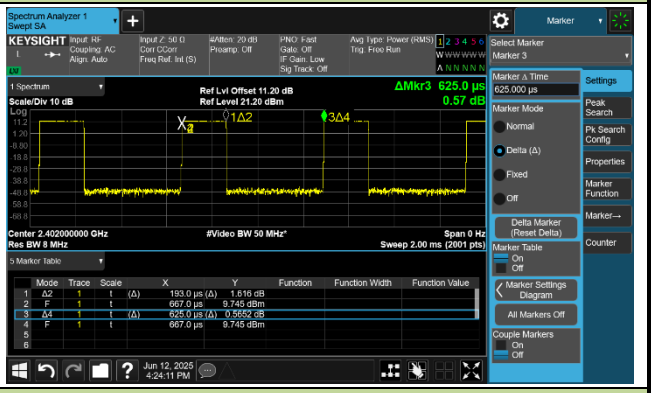
Test Mode	Duty Cycle
BLE-1Mbps	60.16%
BLE-2Mbps	30.88%
BLE-125kbps	82.40%
BLE-500kbps	56.16%

Duty Cycle (T = Transmission Duration)

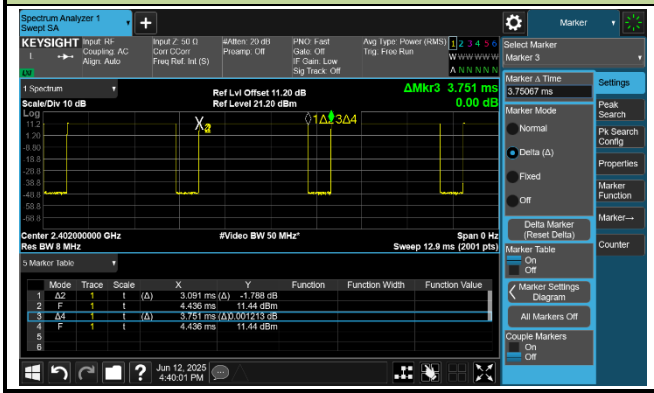
BLE-1Mbps (T = 376.0μs)



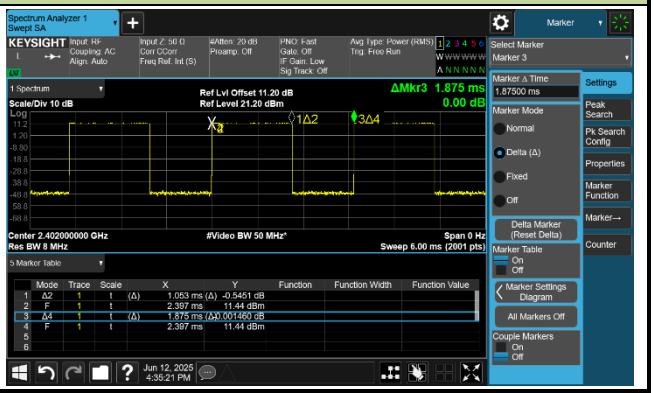
BLE-2Mbps (T = 193.0μs)



BLE-125kbps (T = 3.091ms)



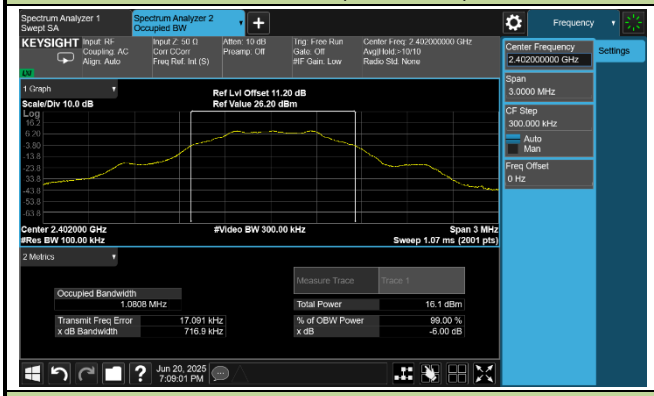
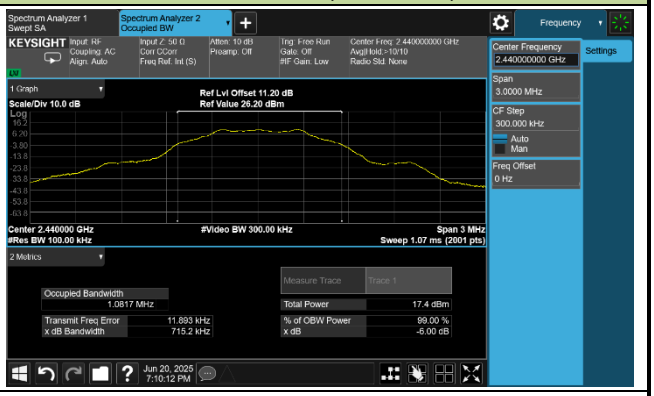
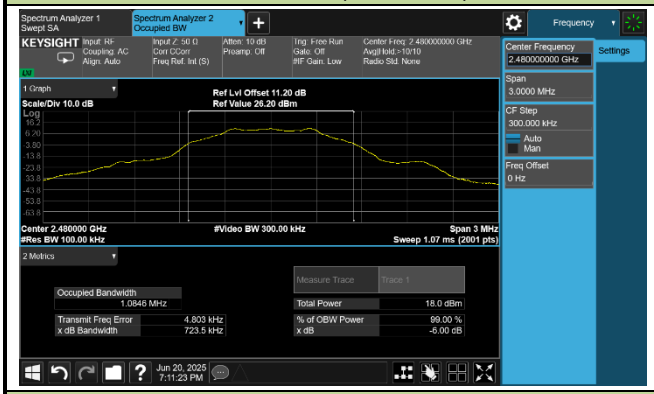
BLE-500kbps (T = 1.053ms)

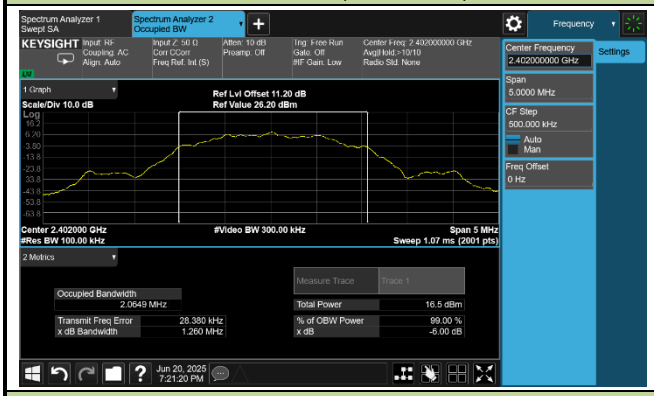
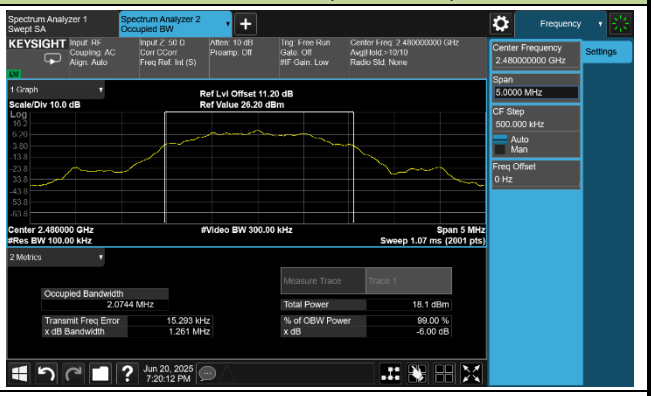
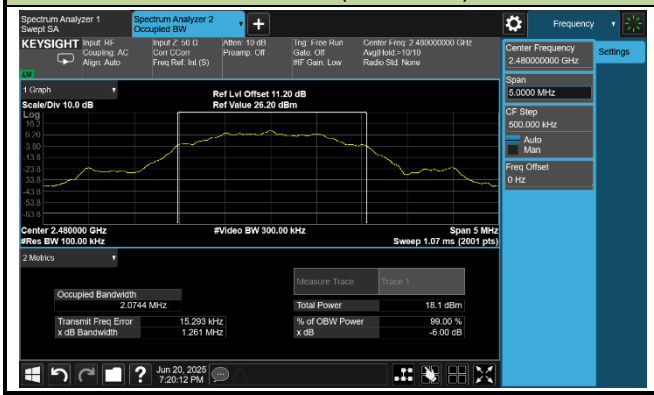


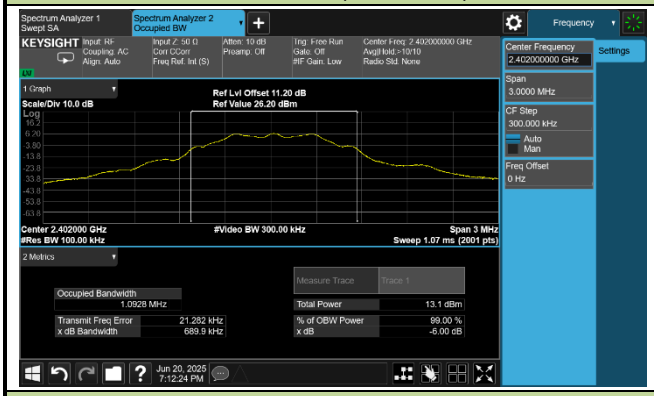
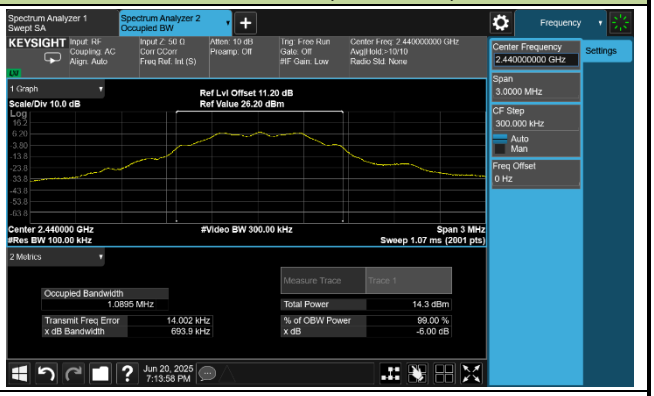
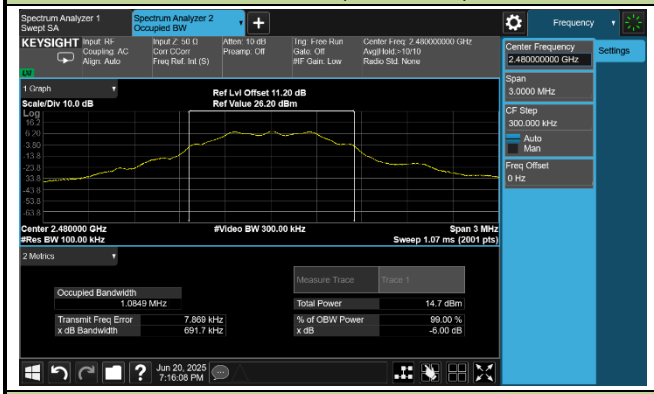
A.2 6dB Bandwidth Test Result

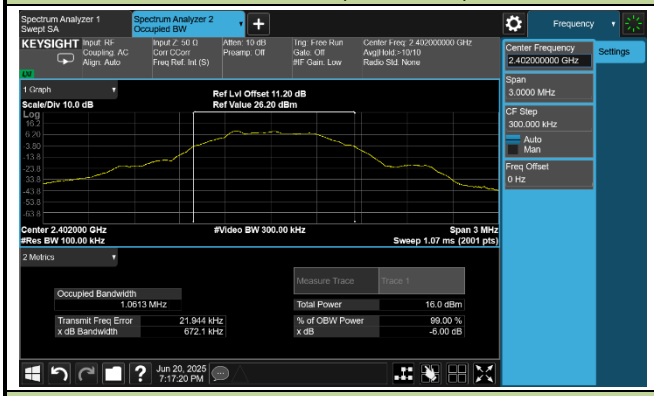
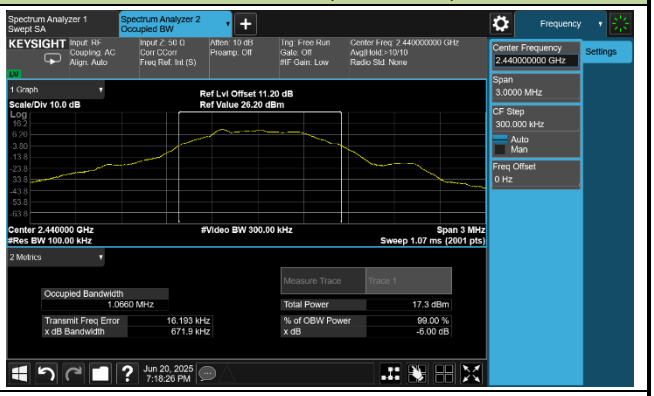
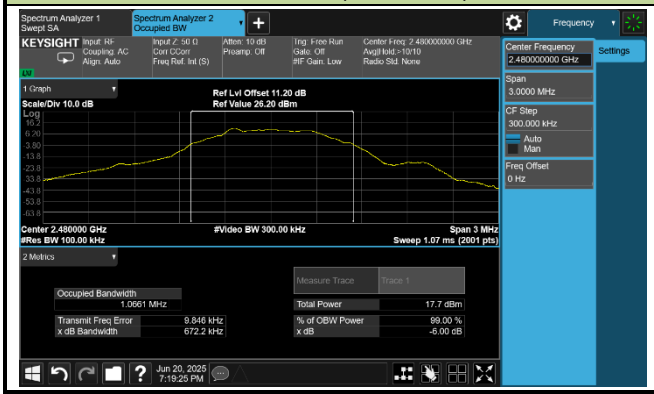
Test Site	SIP-TR1	Test Engineer	Alan Yu
Test Date	2025-06-20		

Test Mode	Data Rate	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
BLE	1Mbps	00	2402	0.7169	≥ 0.5
BLE	1Mbps	19	2440	0.7152	≥ 0.5
BLE	1Mbps	39	2480	0.7235	≥ 0.5
BLE	2Mbps	00	2402	1.260	≥ 0.5
BLE	2Mbps	19	2440	1.261	≥ 0.5
BLE	2Mbps	39	2480	1.261	≥ 0.5
BLE	125kbps	00	2402	0.6899	≥ 0.5
BLE	125kbps	19	2440	0.6939	≥ 0.5
BLE	125kbps	39	2480	0.6917	≥ 0.5
BLE	500kbps	00	2402	0.6721	≥ 0.5
BLE	500kbps	19	2440	0.6719	≥ 0.5
BLE	500kbps	39	2480	0.6722	≥ 0.5

BLE-1Mbps 6dB Bandwidth	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

BLE-2Mbps 6dB Bandwidth	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

BLE-125kbps 6dB Bandwidth	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

BLE-500kbps 6dB Bandwidth	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

A.3 Output Power Test Result

Test Site	SIP-TR1	Test Engineer	Alan Yu
Test Date	2025-06-12		

Test Result of Peak Output Power

Test Mode	Data Rate	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	11.75	≤ 30.00	Pass
BLE	1Mbps	19	2440	12.01	≤ 30.00	Pass
BLE	1Mbps	39	2480	12.04	≤ 30.00	Pass
BLE	2Mbps	00	2402	11.84	≤ 30.00	Pass
BLE	2Mbps	19	2440	12.02	≤ 30.00	Pass
BLE	2Mbps	39	2480	12.17	≤ 30.00	Pass
BLE	125kbps	00	2402	11.74	≤ 30.00	Pass
BLE	125kbps	19	2440	12.03	≤ 30.00	Pass
BLE	125kbps	39	2480	12.15	≤ 30.00	Pass
BLE	500kbps	00	2402	11.76	≤ 30.00	Pass
BLE	500kbps	19	2440	12.02	≤ 30.00	Pass
BLE	500kbps	39	2480	12.06	≤ 30.00	Pass

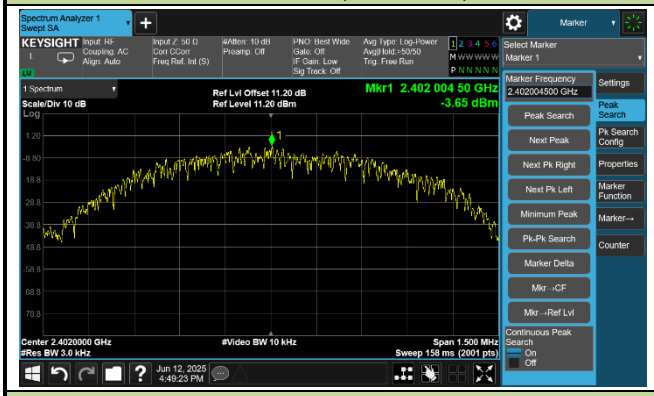
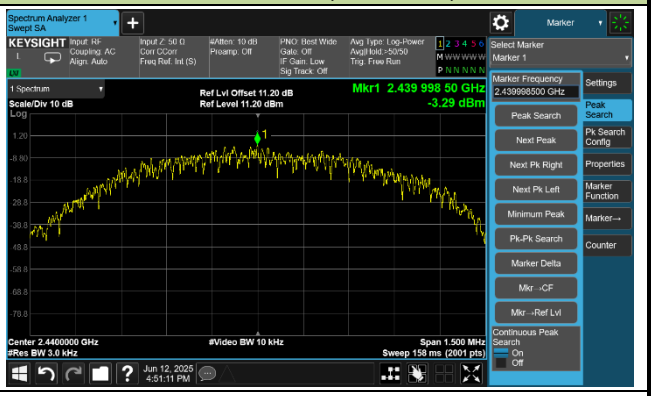
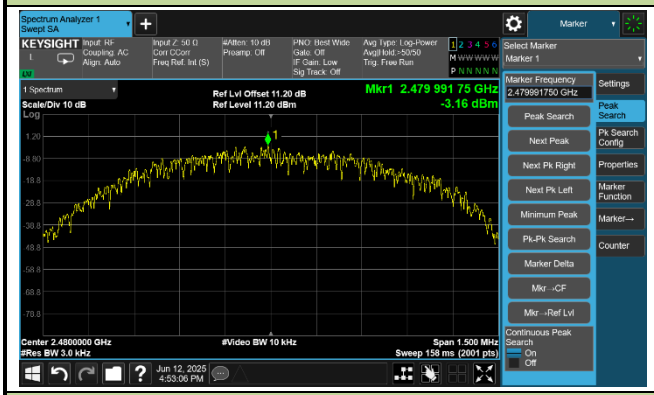
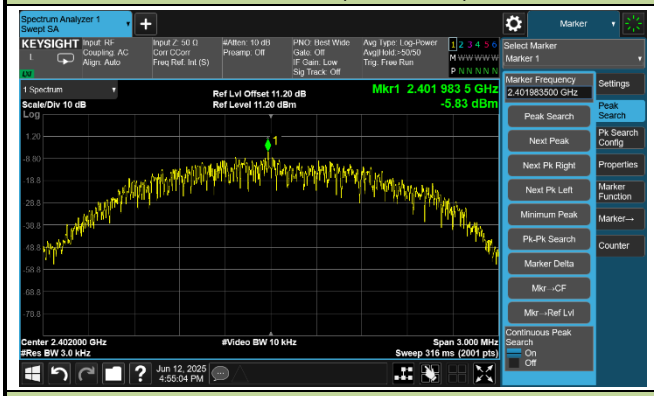
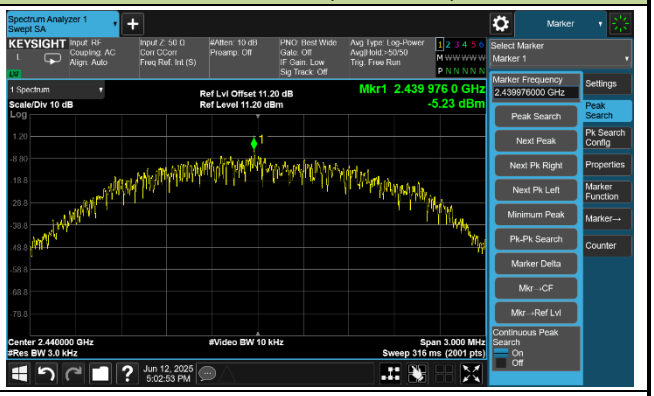
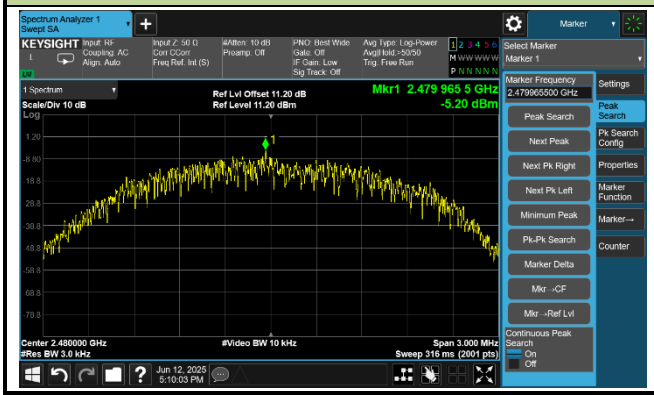
Test Result of Average Output Power (Reporting Only)

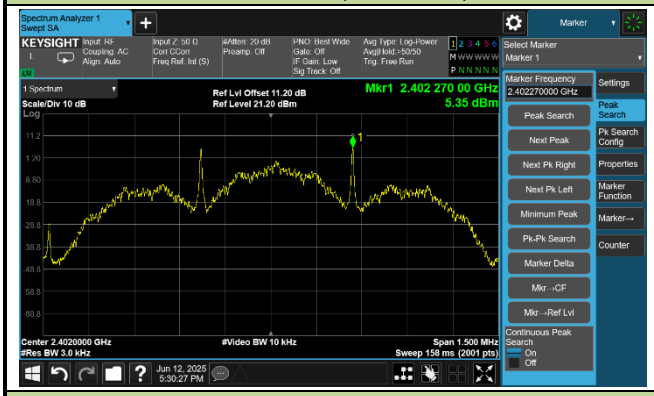
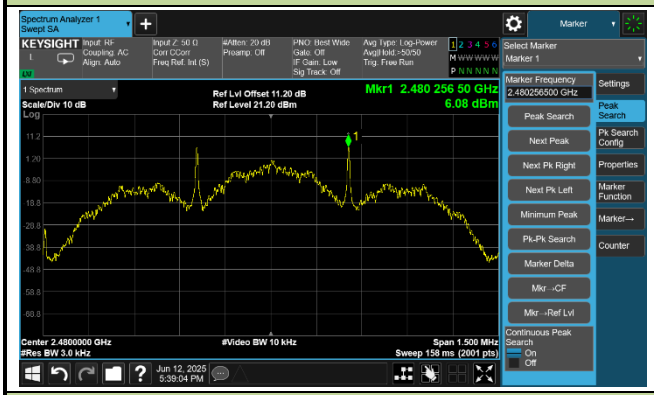
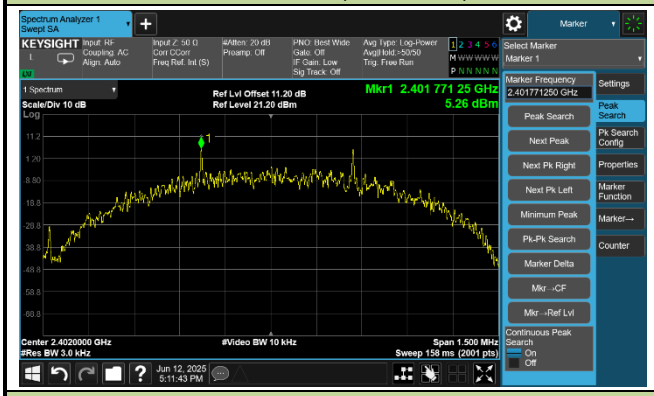
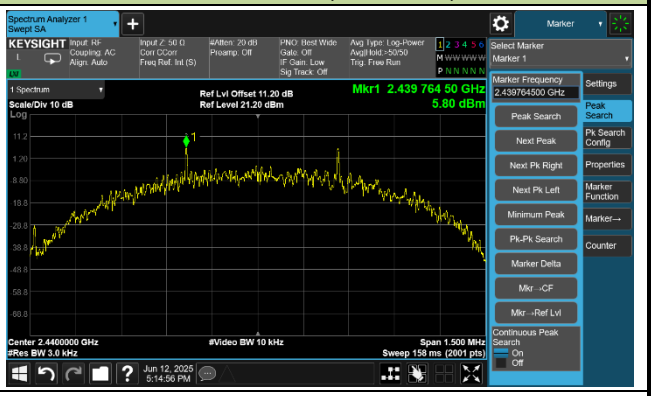
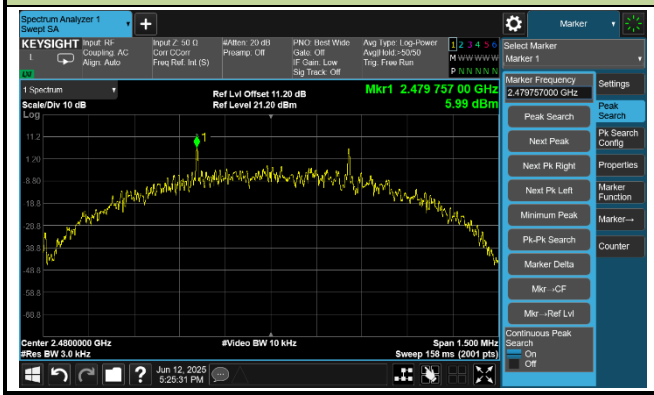
Test Mode	Data Rate	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Result
BLE	1Mbps	00	2402	11.57	≤ 30.00	Pass
BLE	1Mbps	19	2440	11.87	≤ 30.00	Pass
BLE	1Mbps	39	2480	11.93	≤ 30.00	Pass
BLE	2Mbps	00	2402	11.57	≤ 30.00	Pass
BLE	2Mbps	19	2440	11.88	≤ 30.00	Pass
BLE	2Mbps	39	2480	11.93	≤ 30.00	Pass
BLE	125kbps	00	2402	11.57	≤ 30.00	Pass
BLE	125kbps	19	2440	11.89	≤ 30.00	Pass
BLE	125kbps	39	2480	11.92	≤ 30.00	Pass
BLE	500kbps	00	2402	11.58	≤ 30.00	Pass
BLE	500kbps	19	2440	11.88	≤ 30.00	Pass
BLE	500kbps	39	2480	11.93	≤ 30.00	Pass

A.4 Power Spectral Density Test Result

Test Site	SIP-TR1	Test Engineer	Alan Yu
Test Date	2025-06-12		

Test Mode	Data Rate	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	1Mbps	00	2402	-3.65	≤ 8.00	Pass
BLE	1Mbps	19	2440	-3.29	≤ 8.00	Pass
BLE	1Mbps	39	2480	-3.16	≤ 8.00	Pass
BLE	2Mbps	00	2402	-5.83	≤ 8.00	Pass
BLE	2Mbps	19	2440	-5.23	≤ 8.00	Pass
BLE	2Mbps	39	2480	-5.20	≤ 8.00	Pass
BLE	125kbps	00	2402	5.26	≤ 8.00	Pass
BLE	125kbps	19	2440	5.80	≤ 8.00	Pass
BLE	125kbps	39	2480	5.99	≤ 8.00	Pass
BLE	500kbps	00	2402	5.35	≤ 8.00	Pass
BLE	500kbps	19	2440	5.89	≤ 8.00	Pass
BLE	500kbps	39	2480	6.08	≤ 8.00	Pass

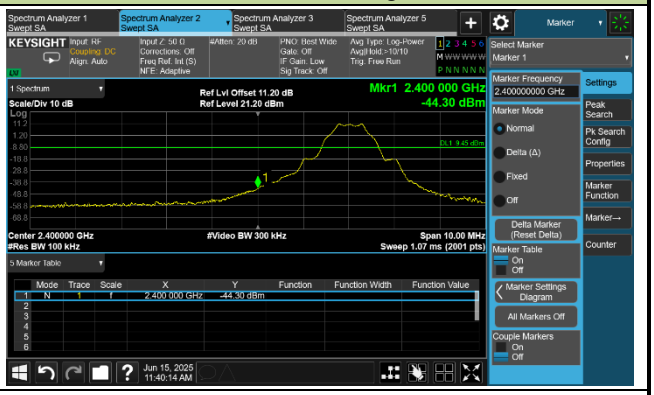
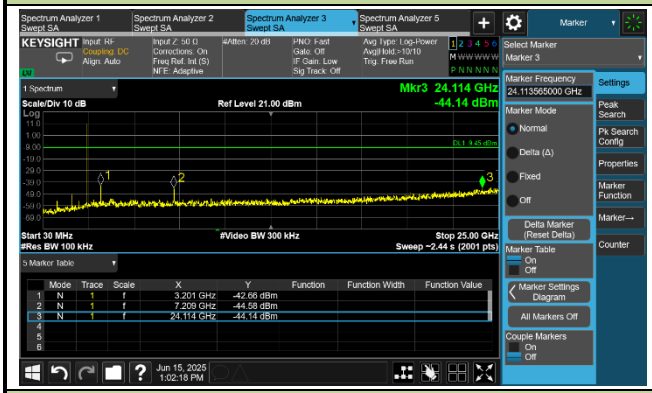
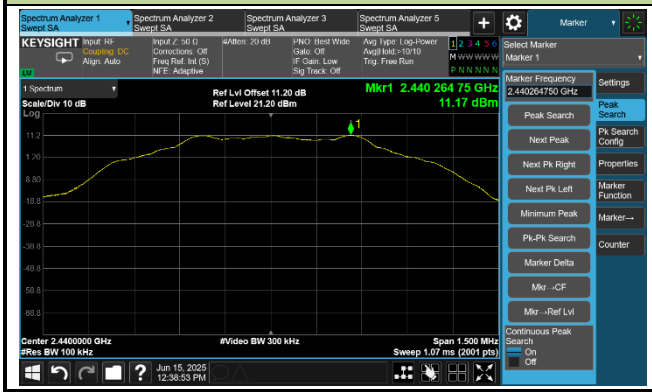
BLE-1Mbps PSD	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	
BLE-2Mbps PSD	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

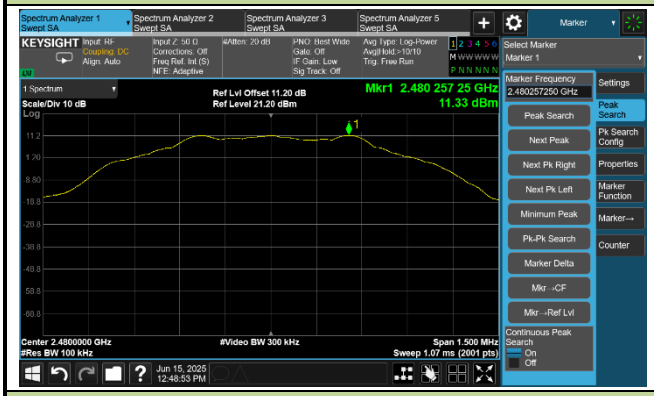
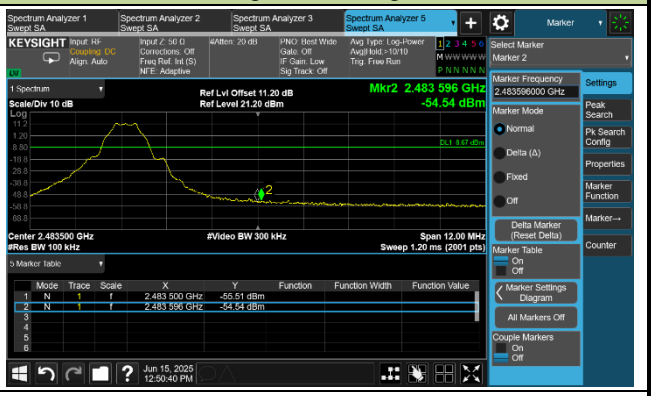
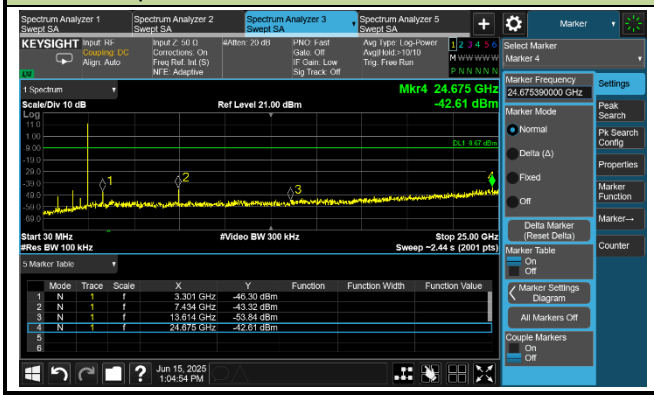
BLE-125kbps PSD	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	
BLE-500kbps PSD	
Channel 00 (2402MHz)	Channel 19 (2440MHz)
	
Channel 39 (2480MHz)	
	

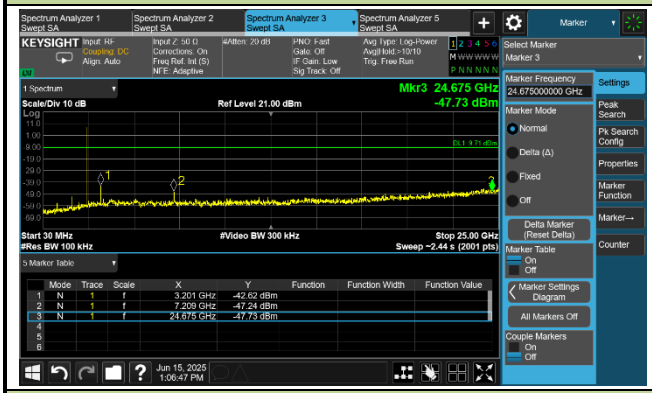
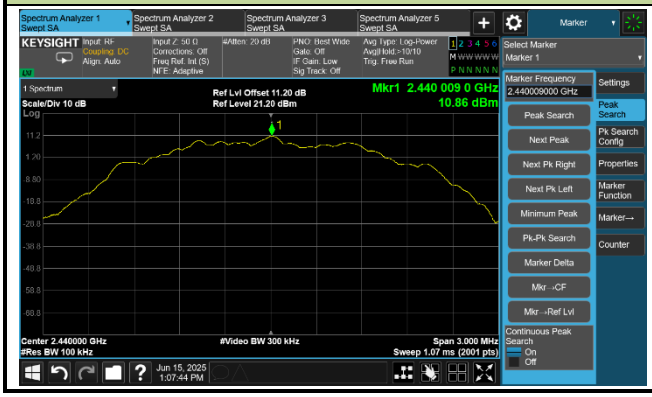
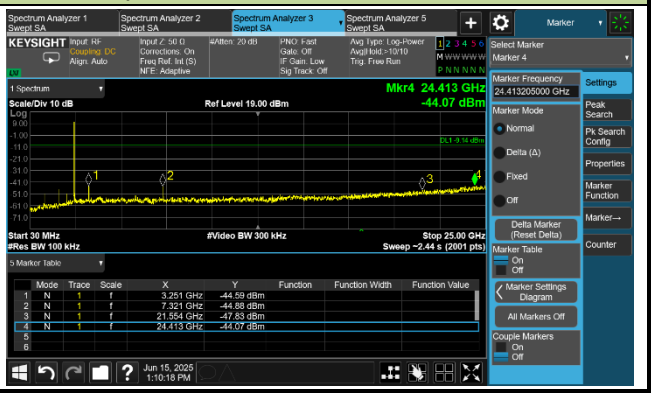
A.5 Conducted Band Edge and Out-of-Band Emissions Test Result

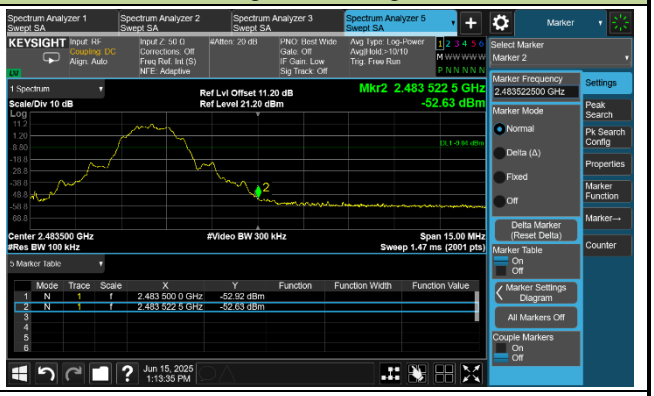
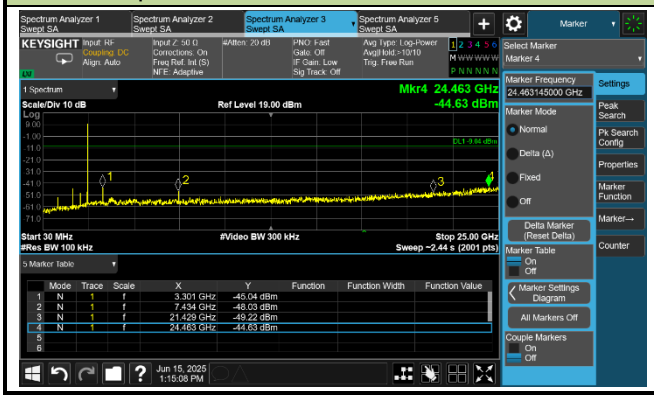
Test Site	SIP-TR1	Test Engineer	Alan Yu
Test Date	2025-06-15 ~ 2025-06-27		

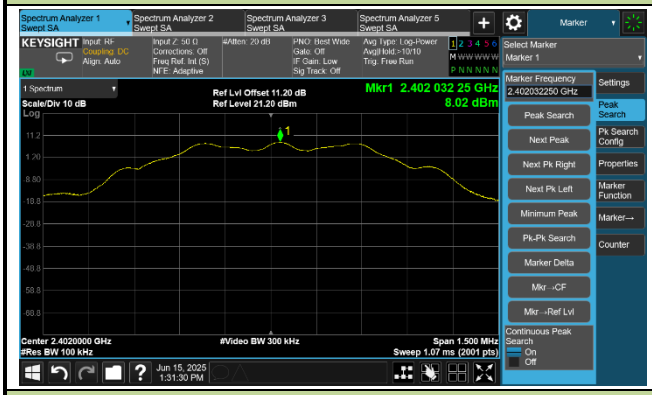
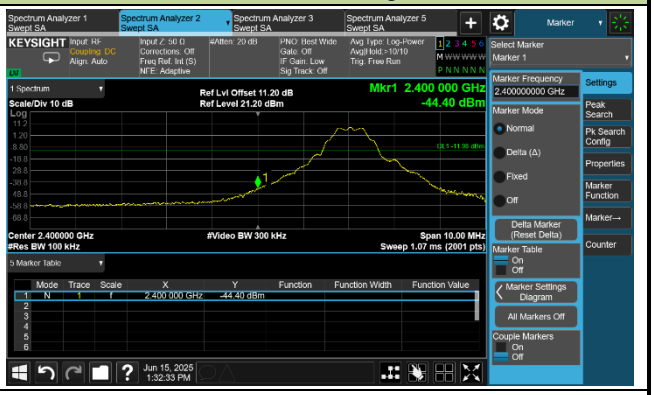
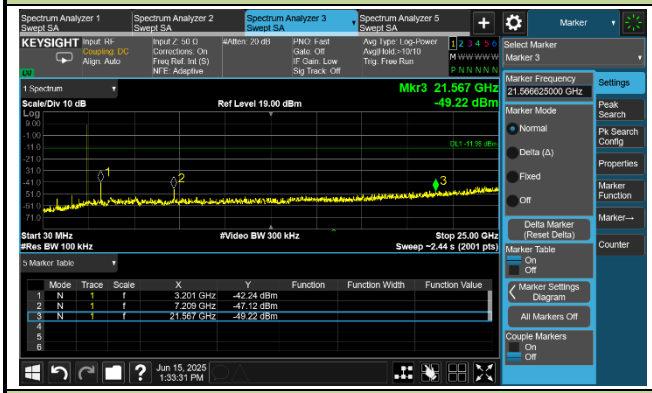
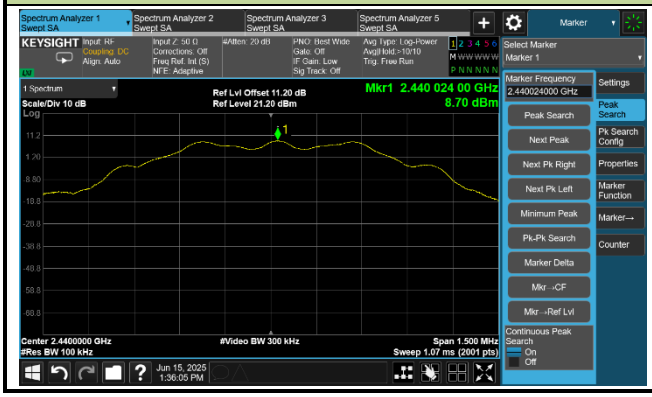
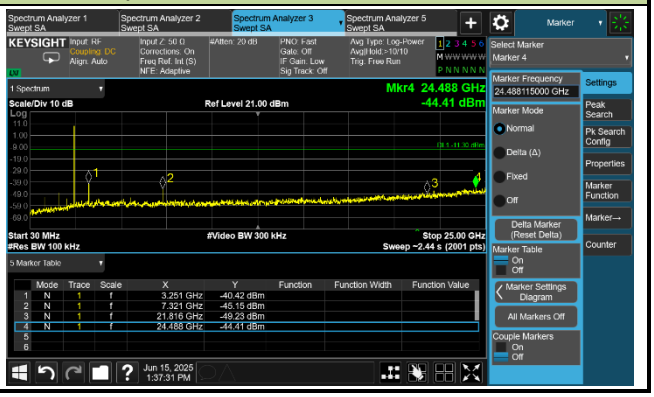
Test Mode	Data Rate	Channel No.	Frequency (MHz)	Limit (dBc)	Result
BLE	1Mbps	00	2402	20	Pass
BLE	1Mbps	19	2440	20	Pass
BLE	1Mbps	39	2480	20	Pass
BLE	2Mbps	00	2402	20	Pass
BLE	2Mbps	19	2440	20	Pass
BLE	2Mbps	39	2480	20	Pass
BLE	125kbps	00	2402	20	Pass
BLE	125kbps	19	2440	20	Pass
BLE	125kbps	39	2480	20	Pass
BLE	500kbps	00	2402	20	Pass
BLE	500kbps	19	2440	20	Pass
BLE	500kbps	39	2480	20	Pass

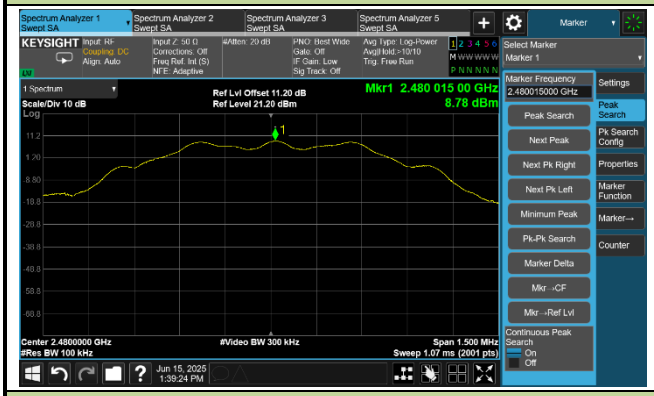
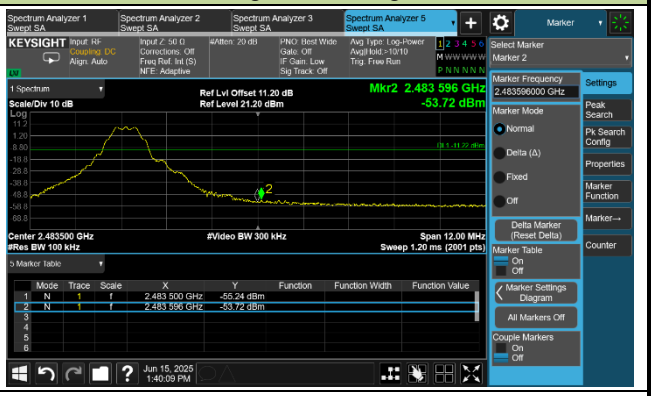
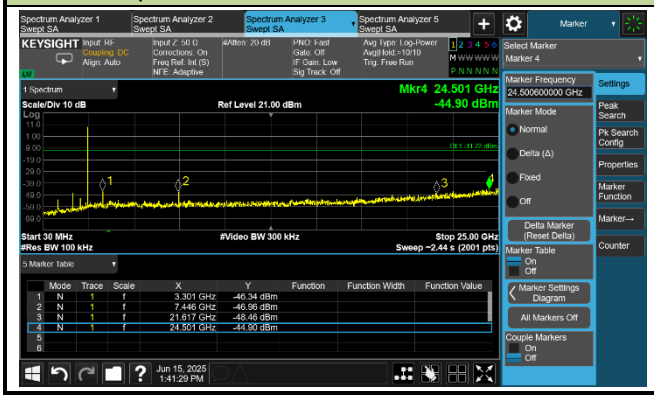
BLE-1Mbps Out-of-Band Emissions	
Channel 00 (2402MHz)	
100kHz PSD Reference Level	Low Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	
Channel 19 (2440MHz)	
100kHz PSD Reference Level	Spurious Emission 30MHz ~ 25GHz
	

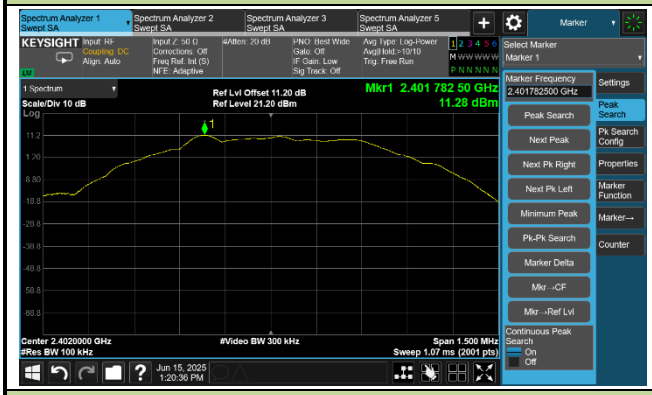
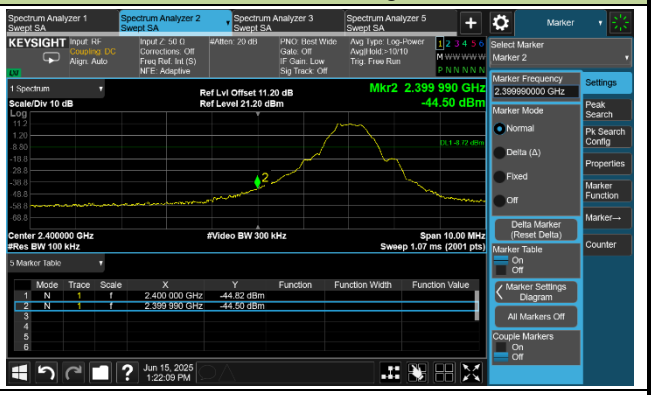
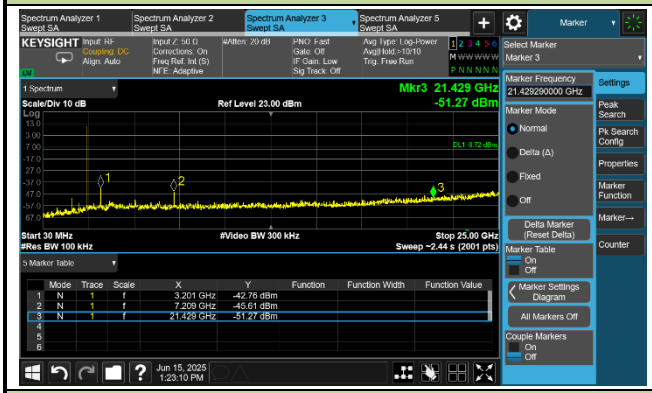
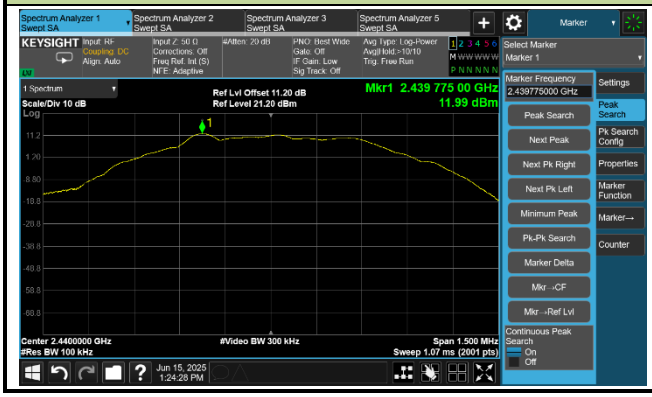
Channel 39 (2480MHz)	
100kHz PSD Reference Level	High Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	

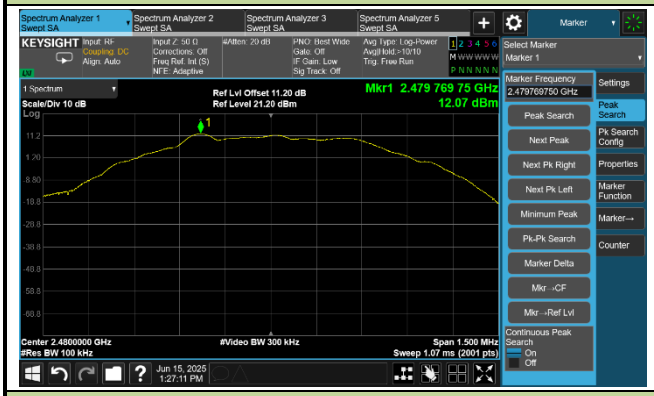
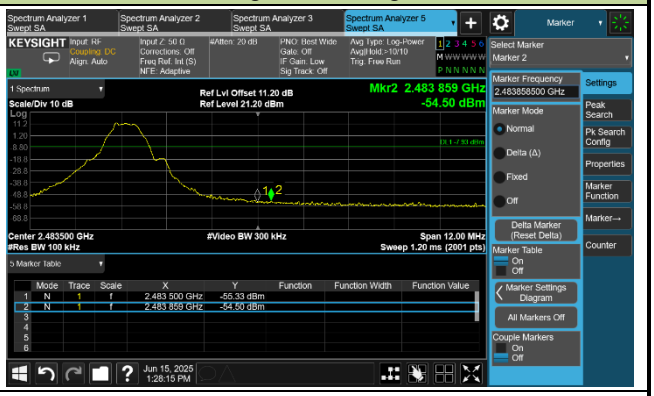
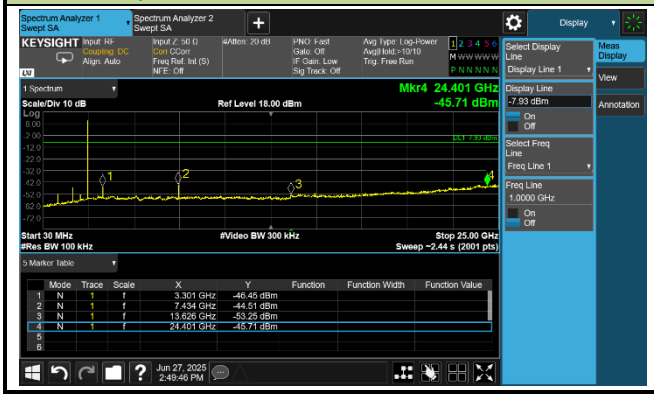
BLE-2Mbps Out-of-Band Emissions	
Channel 00 (2402MHz)	
100kHz PSD Reference Level	Low Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	
Channel 19 (2440MHz)	
100kHz PSD Reference Level	Spurious Emission 30MHz ~ 25GHz
	

Channel 39 (2480MHz)	
100kHz PSD Reference Level	High Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	

BLE-125kbps Out-of-Band Emissions	
Channel 00 (2402MHz)	
100kHz PSD Reference Level	Low Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	
Channel 19 (2440MHz)	
100kHz PSD Reference Level	Spurious Emission 30MHz ~ 25GHz
	

Channel 39 (2480MHz)	
100kHz PSD Reference Level	High Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	

BLE-500kbps Out-of-Band Emissions	
Channel 00 (2402MHz)	
100kHz PSD Reference Level	Low Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	
Channel 19 (2440MHz)	
100kHz PSD Reference Level	Spurious Emission 30MHz ~ 25GHz
	

Channel 39 (2480MHz)	
100kHz PSD Reference Level	High Band Edge
	
Spurious Emission 30MHz ~ 25GHz	
	

A.6 Radiated Spurious Emission Test Result

Test Site	SIP-AC2	Test Engineer	Fusco Pan
Test Date	2025-06-14	Test Mode	BLE-1Mbps
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Test Channel	Frequency (MHz)	Reading Level (dBµV)	Factor (dB/m)	Measure Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Polarization
00	8063.50	43.38	3.64	47.02	74.00	-26.98	Peak	Horizontal
	9391.20	44.16	5.74	49.90	74.00	-24.10	Peak	Horizontal
	10888.90	43.23	7.39	50.62	74.00	-23.38	Peak	Horizontal
	7281.50	44.30	1.89	46.19	74.00	-27.81	Peak	Vertical
	8095.80	44.79	3.61	48.40	74.00	-25.60	Peak	Vertical
	11657.30	41.65	7.75	49.40	74.00	-24.60	Peak	Vertical
19	7536.50	44.15	2.22	46.37	74.00	-27.63	Peak	Horizontal
	8208.00	43.87	4.04	47.91	74.00	-26.09	Peak	Horizontal
	11466.90	41.38	7.92	49.30	74.00	-24.70	Peak	Horizontal
	7660.60	45.09	2.18	47.27	74.00	-26.73	Peak	Vertical
	8376.30	43.25	3.97	47.22	74.00	-26.78	Peak	Vertical
	10916.10	42.53	7.20	49.73	74.00	-24.27	Peak	Vertical
39	7579.00	43.86	2.46	46.32	74.00	-27.68	Peak	Horizontal
	8376.30	43.56	3.97	47.53	74.00	-26.47	Peak	Horizontal
	10846.40	42.96	6.86	49.82	74.00	-24.18	Peak	Horizontal
	7546.70	44.29	2.06	46.35	74.00	-27.65	Peak	Vertical
	8213.10	44.12	4.10	48.22	74.00	-25.78	Peak	Vertical
	11074.20	42.80	7.65	50.45	74.00	-23.55	Peak	Vertical

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Fusco Pan
Test Date	2025-06-14	Test Mode	BLE-2Mbps
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Test Channel	Frequency (MHz)	Reading Level (dBµV)	Factor (dB/m)	Measure Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Polarization
00	7536.50	45.26	2.22	47.48	74.00	-26.52	Peak	Horizontal
	8196.10	43.87	3.90	47.77	74.00	-26.23	Peak	Horizontal
	10941.60	42.87	7.73	50.60	74.00	-23.40	Peak	Horizontal
	7511.00	43.81	2.20	46.01	74.00	-27.99	Peak	Vertical
	8216.50	43.75	4.14	47.89	74.00	-26.11	Peak	Vertical
	11584.20	41.75	8.03	49.78	74.00	-24.22	Peak	Vertical
19	7352.90	43.89	1.88	45.77	74.00	-28.23	Peak	Horizontal
	8114.50	43.00	3.96	46.96	74.00	-27.04	Peak	Horizontal
	11084.40	42.14	7.65	49.79	74.00	-24.21	Peak	Horizontal
	7375.00	43.49	2.00	45.49	74.00	-28.51	Peak	Vertical
	8406.90	43.36	4.18	47.54	74.00	-26.46	Peak	Vertical
	10727.40	43.07	7.21	50.28	74.00	-23.72	Peak	Vertical
39	7460.00	43.84	2.13	45.97	74.00	-28.03	Peak	Horizontal
	8039.70	43.56	4.11	47.67	74.00	-26.33	Peak	Horizontal
	11052.10	42.52	7.57	50.09	74.00	-23.91	Peak	Horizontal
	7534.80	44.22	2.25	46.47	74.00	-27.53	Peak	Vertical
	8435.80	44.14	3.91	48.05	74.00	-25.95	Peak	Vertical
	11521.30	41.90	8.10	50.00	74.00	-24.00	Peak	Vertical

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Fusco Pan
Test Date	2025-06-14	Test Mode	BLE-125kbps
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Test Channel	Frequency (MHz)	Reading Level (dBµV)	Factor (dB/m)	Measure Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Polarization
00	7521.20	44.90	2.29	47.19	74.00	-26.81	Peak	Horizontal
	8410.30	43.13	4.17	47.30	74.00	-26.70	Peak	Horizontal
	11648.80	41.75	7.90	49.65	74.00	-24.35	Peak	Horizontal
	7471.90	44.05	2.04	46.09	74.00	-27.91	Peak	Vertical
	8179.10	43.20	4.01	47.21	74.00	-26.79	Peak	Vertical
	11526.40	42.06	8.11	50.17	74.00	-23.83	Peak	Vertical
19	8219.90	44.60	4.18	48.78	74.00	-25.22	Peak	Horizontal
	9382.70	42.73	5.81	48.54	74.00	-25.46	Peak	Horizontal
	11021.50	41.84	7.41	49.25	74.00	-24.75	Peak	Horizontal
	7509.30	43.87	2.18	46.05	74.00	-27.95	Peak	Vertical
	8075.40	43.46	3.81	47.27	74.00	-26.73	Peak	Vertical
	11664.10	42.24	7.57	49.81	74.00	-24.19	Peak	Vertical
39	7443.00	44.84	1.81	46.65	74.00	-27.35	Peak	Horizontal
	8116.20	43.01	3.98	46.99	74.00	-27.01	Peak	Horizontal
	11585.90	41.55	8.08	49.63	74.00	-24.37	Peak	Horizontal
	7407.30	43.74	2.03	45.77	74.00	-28.23	Peak	Vertical
	8391.60	43.75	4.14	47.89	74.00	-26.11	Peak	Vertical
	10897.40	43.09	7.46	50.55	74.00	-23.45	Peak	Vertical

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Site	SIP-AC2	Test Engineer	Fusco Pan
Test Date	2025-06-14	Test Mode	BLE-500kbps
Remark	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

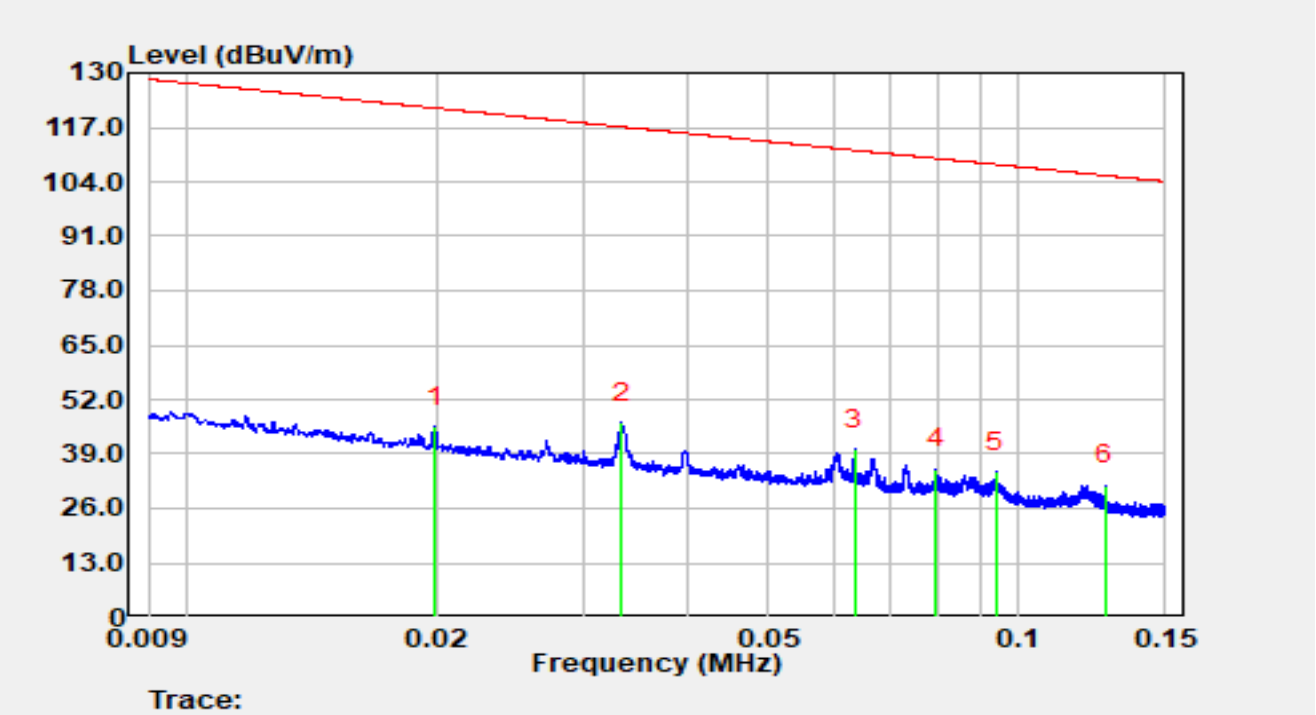
Test Channel	Frequency (MHz)	Reading Level (dBµV)	Factor (dB/m)	Measure Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Polarization
00	7684.40	44.36	2.06	46.42	74.00	-27.58	Peak	Horizontal
	8039.70	42.78	4.11	46.89	74.00	-27.11	Peak	Horizontal
	11521.30	41.28	8.10	49.38	74.00	-24.62	Peak	Horizontal
	7325.70	43.34	2.01	45.35	74.00	-28.65	Peak	Vertical
	8041.40	43.10	4.03	47.13	74.00	-26.87	Peak	Vertical
	11516.20	41.60	8.07	49.67	74.00	-24.33	Peak	Vertical
19	7522.90	42.89	2.31	45.20	74.00	-28.80	Peak	Horizontal
	8158.70	42.56	3.90	46.46	74.00	-27.54	Peak	Horizontal
	10883.80	42.27	7.28	49.55	74.00	-24.45	Peak	Horizontal
	7526.30	43.78	2.34	46.12	74.00	-27.88	Peak	Vertical
	8099.20	43.76	3.69	47.45	74.00	-26.55	Peak	Vertical
	11074.20	42.77	7.65	50.42	74.00	-23.58	Peak	Vertical
39	7466.80	43.49	2.08	45.57	74.00	-28.43	Peak	Horizontal
	8039.70	43.01	4.11	47.12	74.00	-26.88	Peak	Horizontal
	10950.10	41.80	7.76	49.56	74.00	-24.44	Peak	Horizontal
	7546.70	43.44	2.06	45.50	74.00	-28.50	Peak	Vertical
	8133.20	42.36	3.93	46.29	74.00	-27.71	Peak	Vertical
	11523.00	41.23	8.12	49.35	74.00	-24.65	Peak	Vertical

Note: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB/m)

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

The Result of Radiated Emission below 1GHz:

Site	SIP-AC2	Test Date	2025-06-17
Temperature	22.3 °C	Humidity	61.2 %
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	FMZB 1519-60 D	Polarity	Coaxial
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		0.020	25.56	19.97	45.53	-76.09	121.62	Peak
2	*	0.033	26.57	19.79	46.36	-70.78	117.14	Peak
3		0.064	20.34	19.75	40.09	-71.45	111.54	Peak
4		0.080	15.71	19.74	35.45	-74.14	109.58	Peak
5		0.094	15.00	19.72	34.72	-73.42	108.14	Peak
6		0.127	11.96	19.66	31.62	-73.90	105.52	Peak

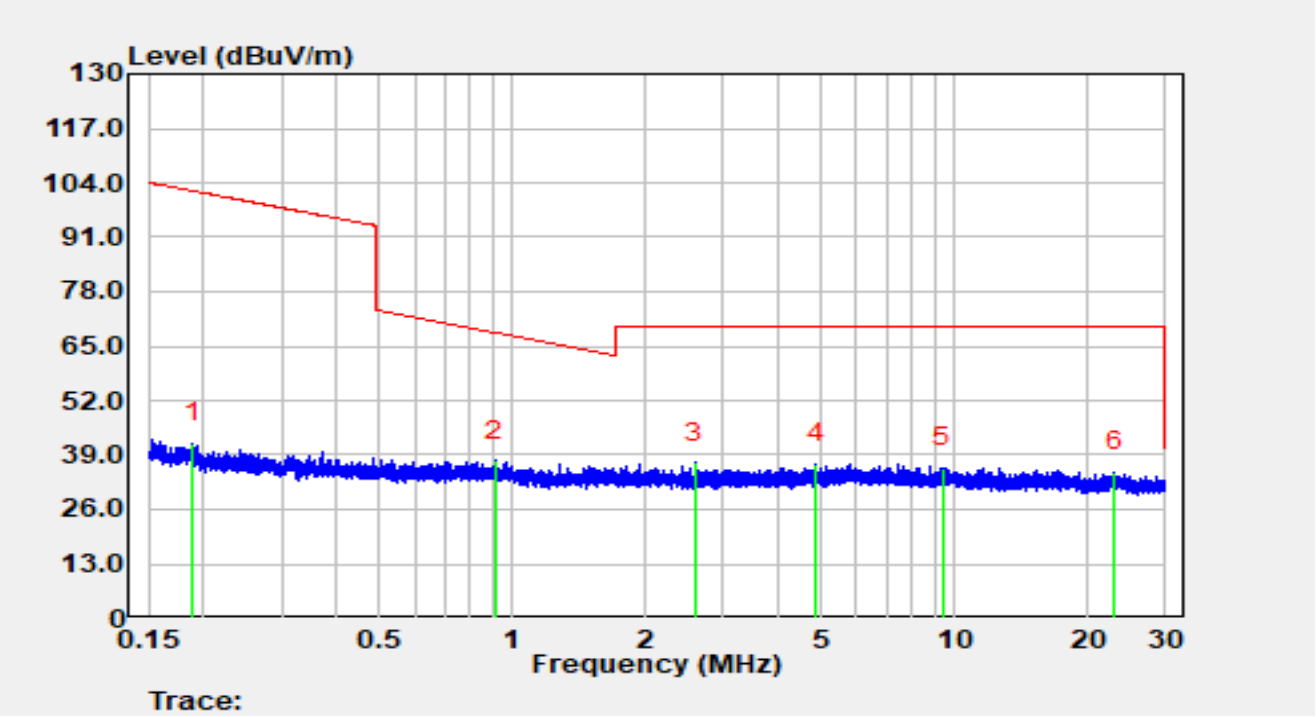
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-17
Temperature	22.3 °C	Humidity	61.2 %
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	FMZB 1519-60 D	Polarity	Coaxial
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		0.189	22.18	19.66	41.84	-60.24	102.08	Peak
2	*	0.913	18.21	19.54	37.76	-30.66	68.41	Peak
3		2.592	17.55	19.59	37.14	-32.36	69.50	Peak
4		4.856	17.49	19.43	36.93	-32.57	69.50	Peak
5		9.431	16.41	19.51	35.92	-33.58	69.50	Peak
6		22.982	15.13	19.93	35.07	-34.43	69.50	Peak

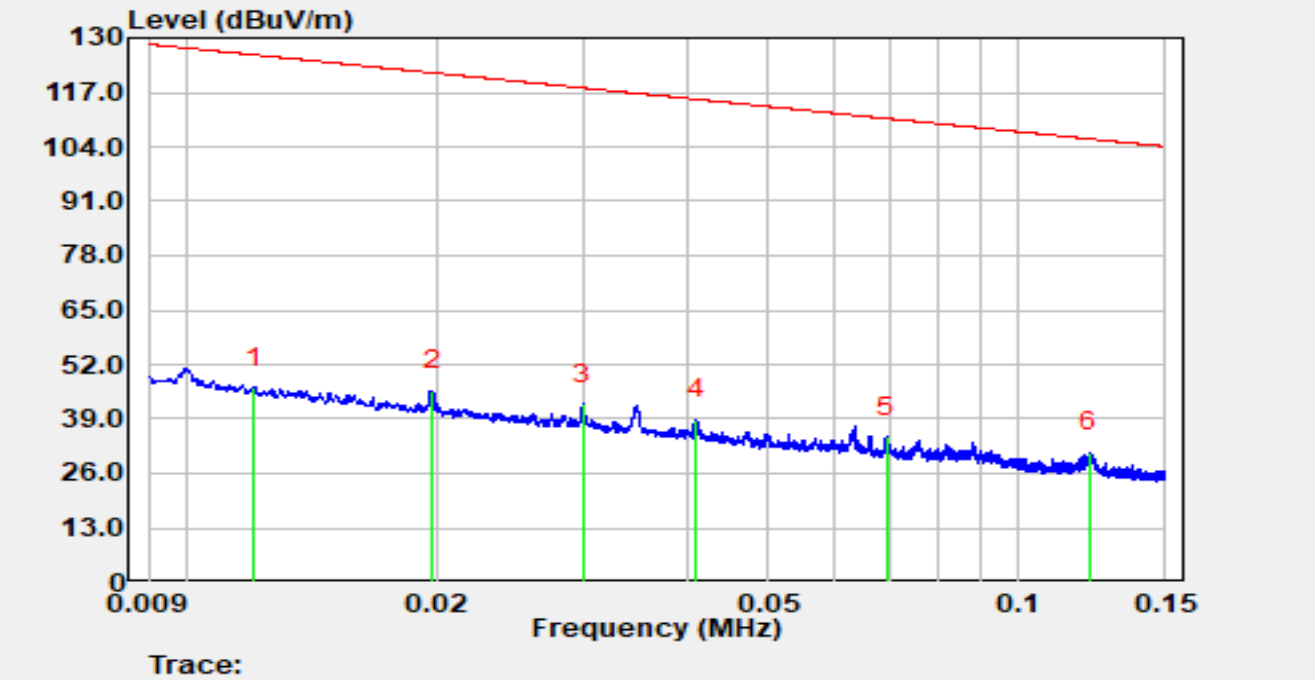
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-17
Temperature	22.3 °C	Humidity	61.2 %
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	FMZB 1519-60 D	Polarity	Coplanar
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		0.012	26.00	20.48	46.47	-79.48	125.95	Peak
2		0.020	25.84	19.98	45.82	-75.86	121.69	Peak
3		0.030	22.77	19.80	42.57	-75.50	118.07	Peak
4		0.041	19.10	19.76	38.86	-76.49	115.35	Peak
5		0.069	14.89	19.75	34.64	-76.12	110.76	Peak
6	*	0.122	11.44	19.66	31.10	-74.80	105.91	Peak

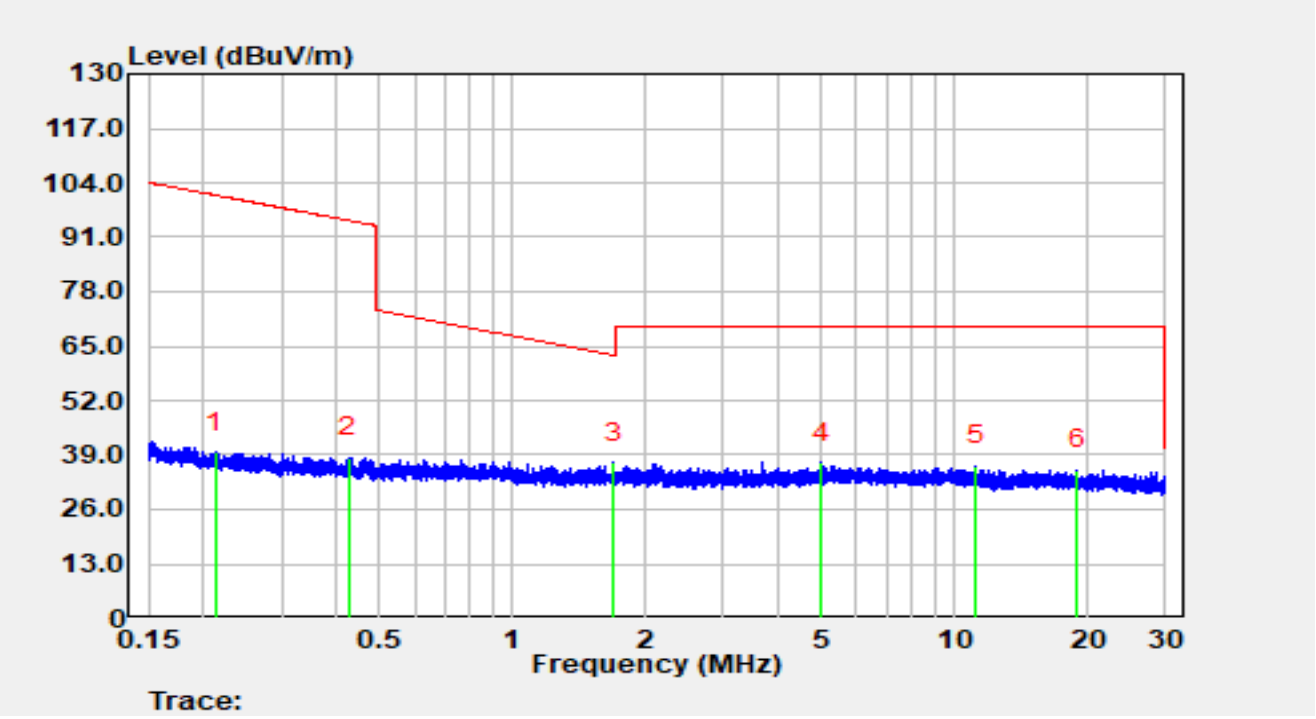
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-17
Temperature	22.3 °C	Humidity	61.2 %
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	FMZB 1519-60 D	Polarity	Coplanar
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		0.213	20.09	19.64	39.73	-61.31	101.04	Peak
2		0.426	18.87	19.60	38.47	-56.55	95.02	Peak
3	*	1.695	17.61	19.67	37.28	-25.77	63.05	Peak
4		4.986	17.80	19.43	37.24	-32.26	69.50	Peak
5		11.144	17.02	19.33	36.35	-33.15	69.50	Peak
6		18.941	15.73	19.61	35.33	-34.17	69.50	Peak

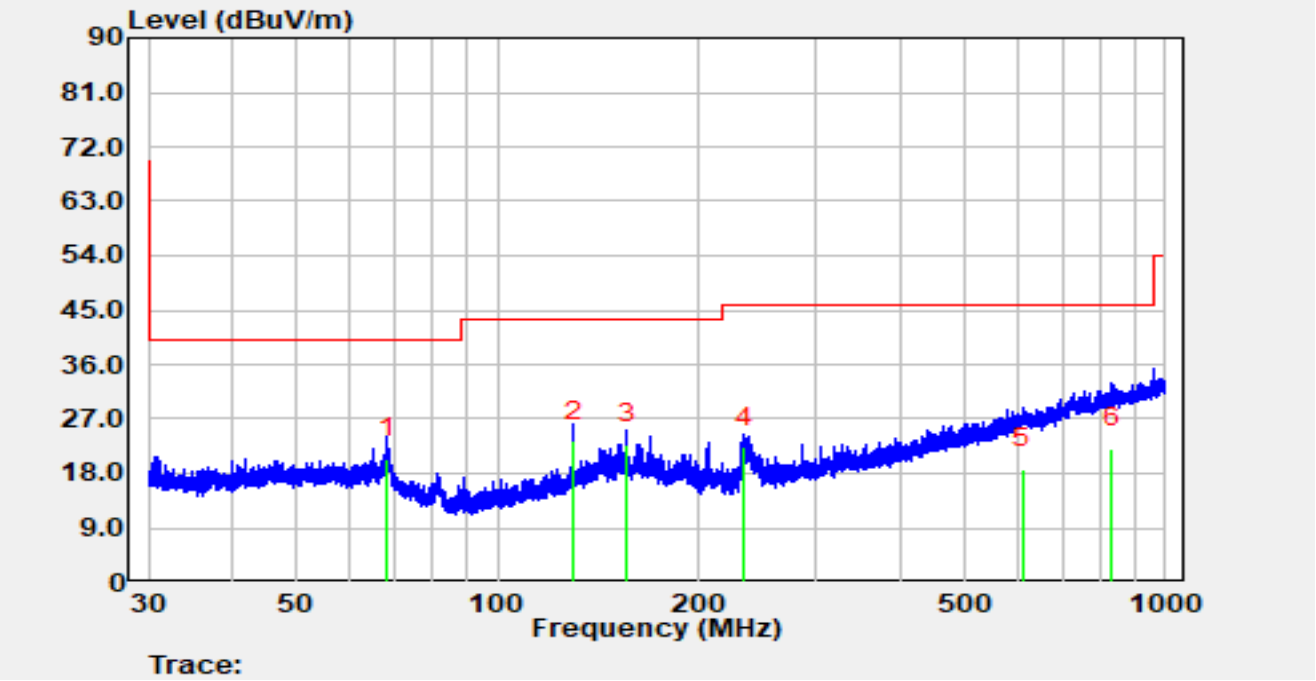
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-17
Temperature	22.3 °C	Humidity	61.2 %
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	VULB 9168_00999	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	68.463	2.33	18.18	20.51	-19.49	40.00	QP
2		130.014	4.80	18.60	23.40	-20.10	43.50	QP
3		155.965	2.70	20.10	22.80	-20.70	43.50	QP
4		234.004	4.10	18.26	22.36	-23.64	46.00	QP
5		611.421	-9.60	28.39	18.79	-27.21	46.00	QP
6		832.733	-9.10	31.22	22.12	-23.88	46.00	QP

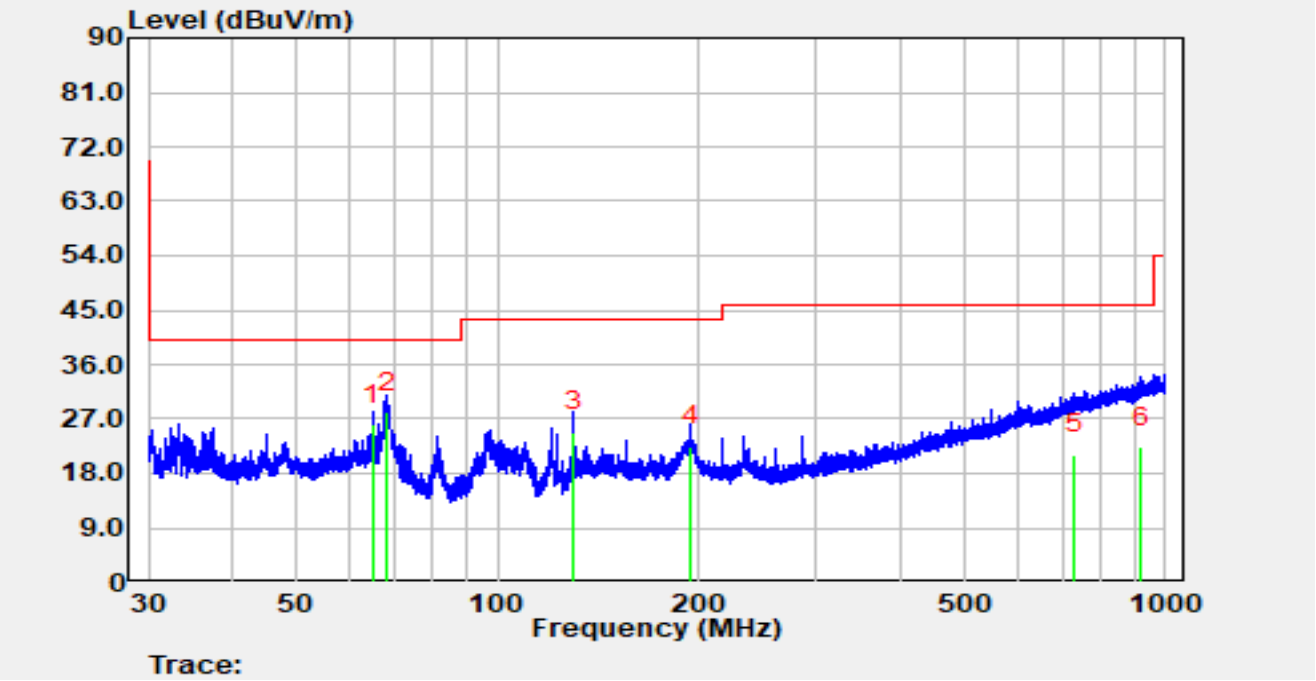
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-17
Temperature	22.3 °C	Humidity	61.2 %
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	VULB 9168_00999	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



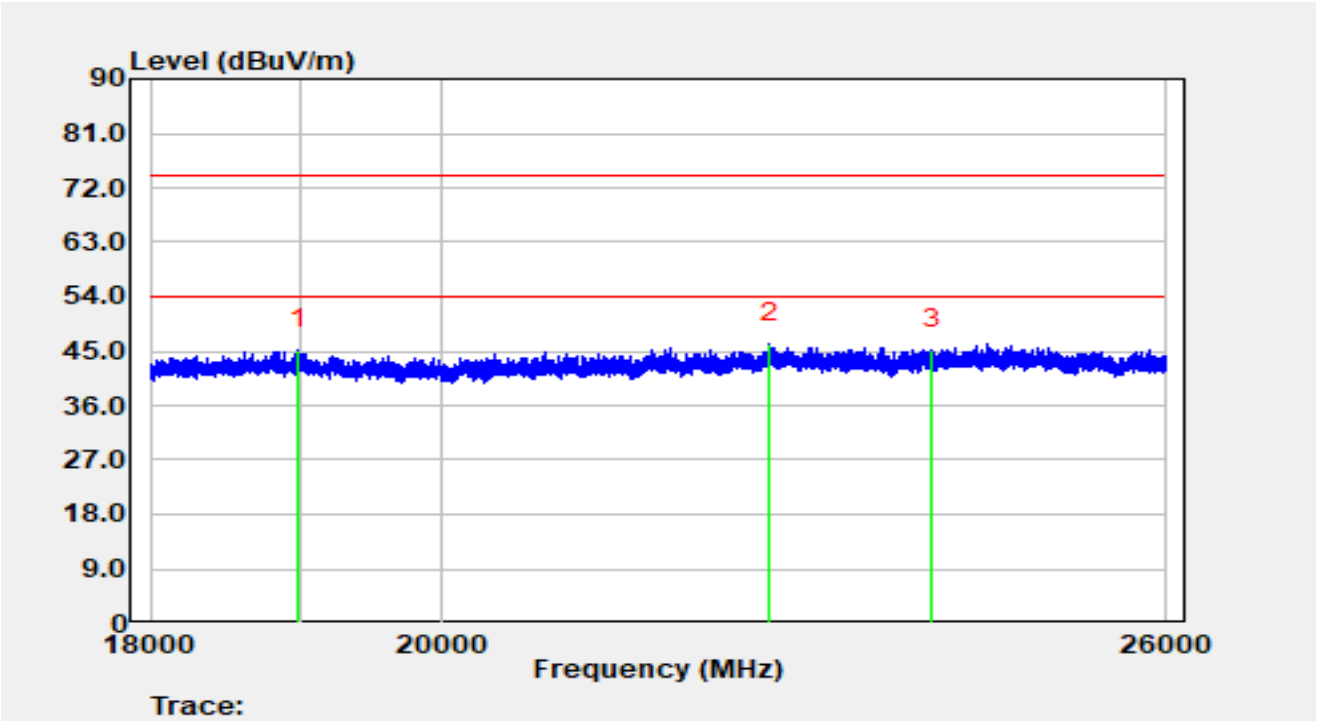
No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		65.023	7.20	18.88	26.08	-13.92	40.00	QP
2	*	68.295	9.90	18.19	28.09	-11.91	40.00	QP
3		130.014	6.30	18.60	24.90	-18.60	43.50	QP
4		195.000	5.20	17.29	22.49	-21.01	43.50	QP
5		731.920	-8.90	30.02	21.12	-24.88	46.00	QP
6		918.320	-9.50	31.91	22.41	-23.59	46.00	QP

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.
2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).
3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

The Result of Radiated Emission above 18GHz:

Site	SIP-AC2	Test Date	2025-06-19
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9170_00934	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		18988.800	55.99	-10.78	45.21	-28.79	74.00	Peak
2	*	22521.600	54.86	-8.59	46.27	-27.73	74.00	Peak
3		23882.400	53.77	-8.53	45.24	-28.76	74.00	Peak

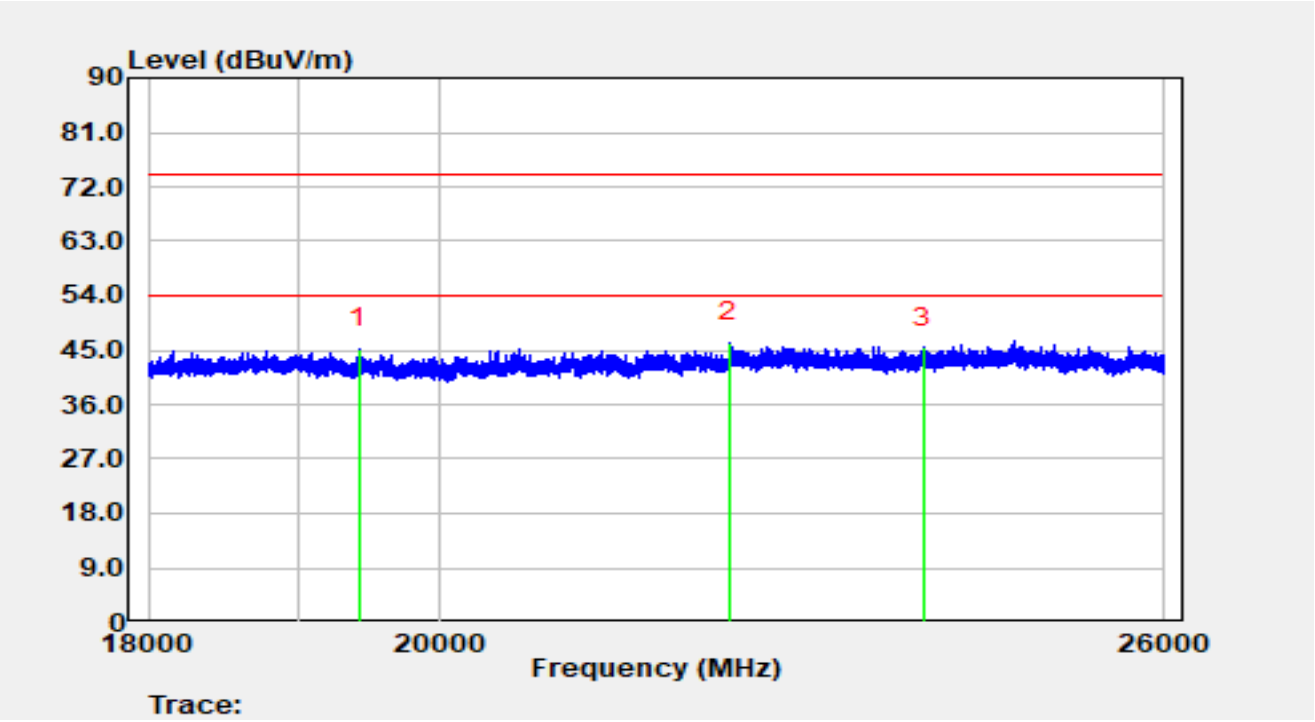
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-19
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part 15.209_RSE(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9170_00934	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		19428.800	56.82	-11.54	45.28	-28.72	74.00	Peak
2	*	22211.200	55.28	-8.94	46.35	-27.65	74.00	Peak
3		23822.400	53.71	-8.21	45.50	-28.50	74.00	Peak

Notes:

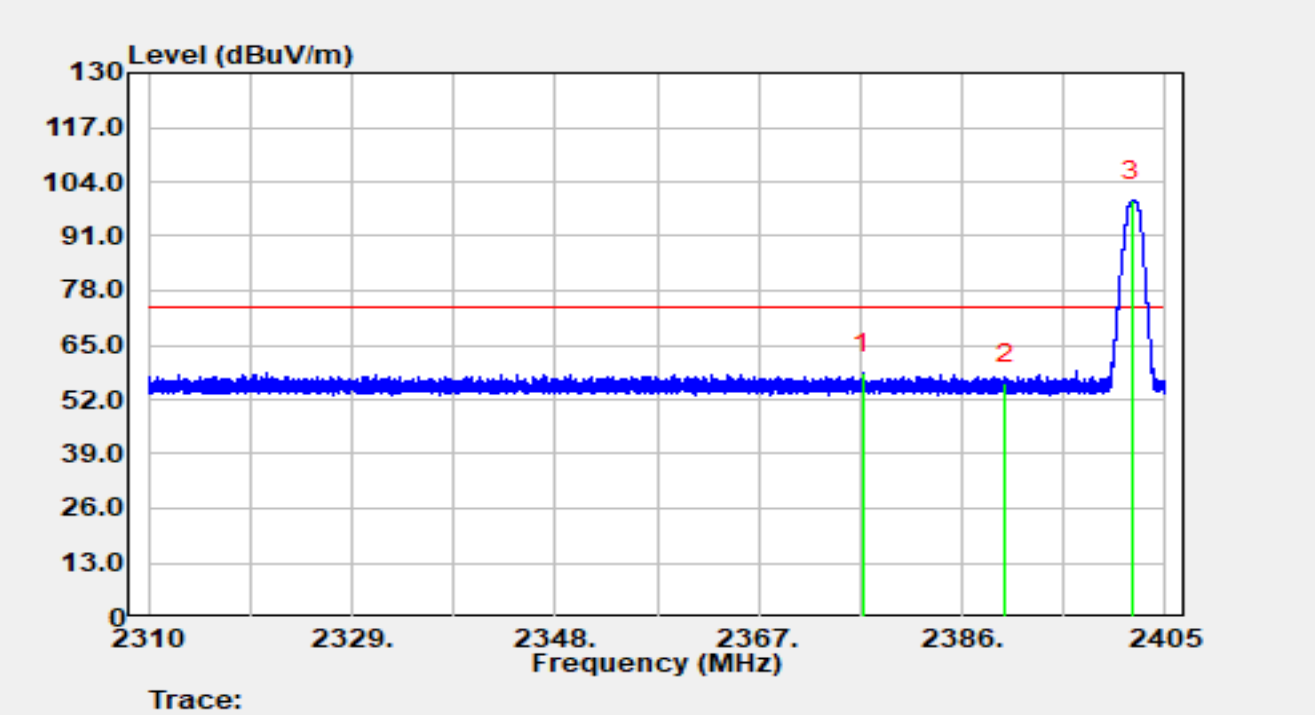
1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - AMP (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

A.7 Radiated Restricted Band Edge Test Result

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2376.775	24.92	33.43	58.35	-15.65	74.00	Peak
2		2390.000	22.32	33.38	55.69	-18.31	74.00	Peak
3		2401.817	66.09	33.33	99.41	N/A	N/A	Peak

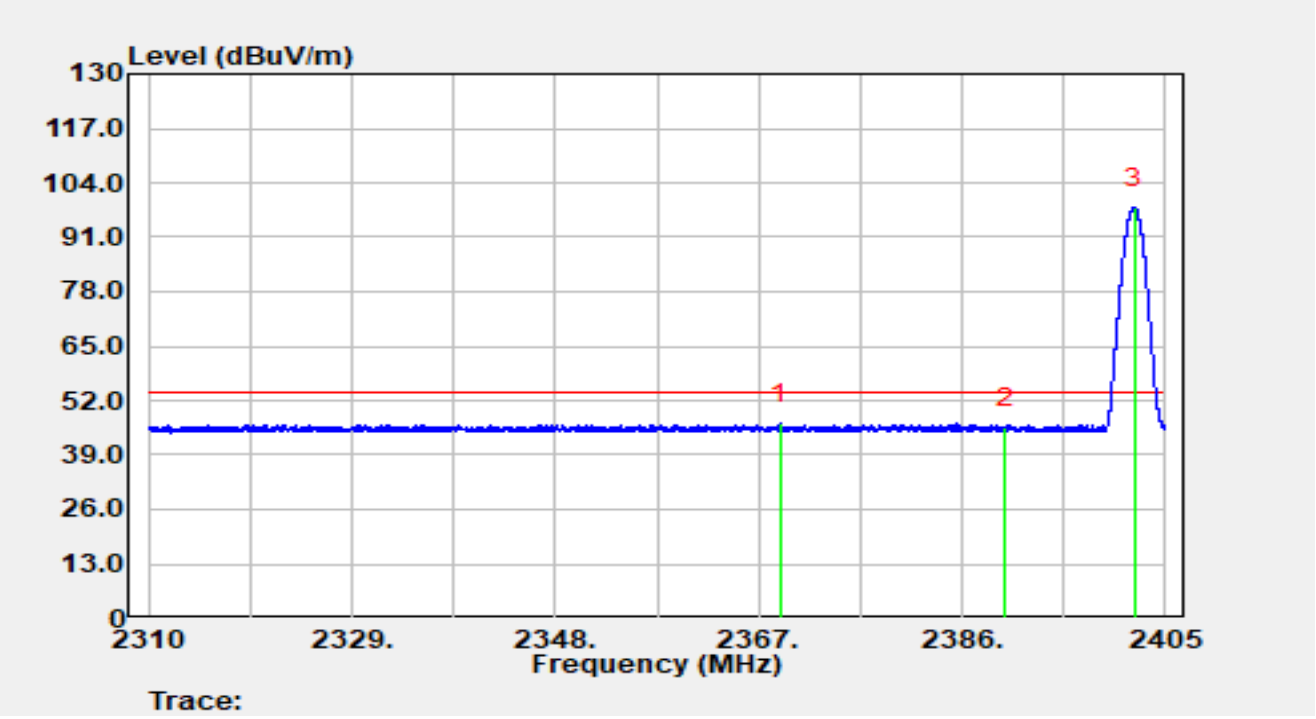
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2369.014	13.10	33.48	46.57	-7.43	54.00	Average
2		2390.000	12.15	33.38	45.53	-8.47	54.00	Average
3		2402.064	64.73	33.33	98.06	N/A	N/A	Average

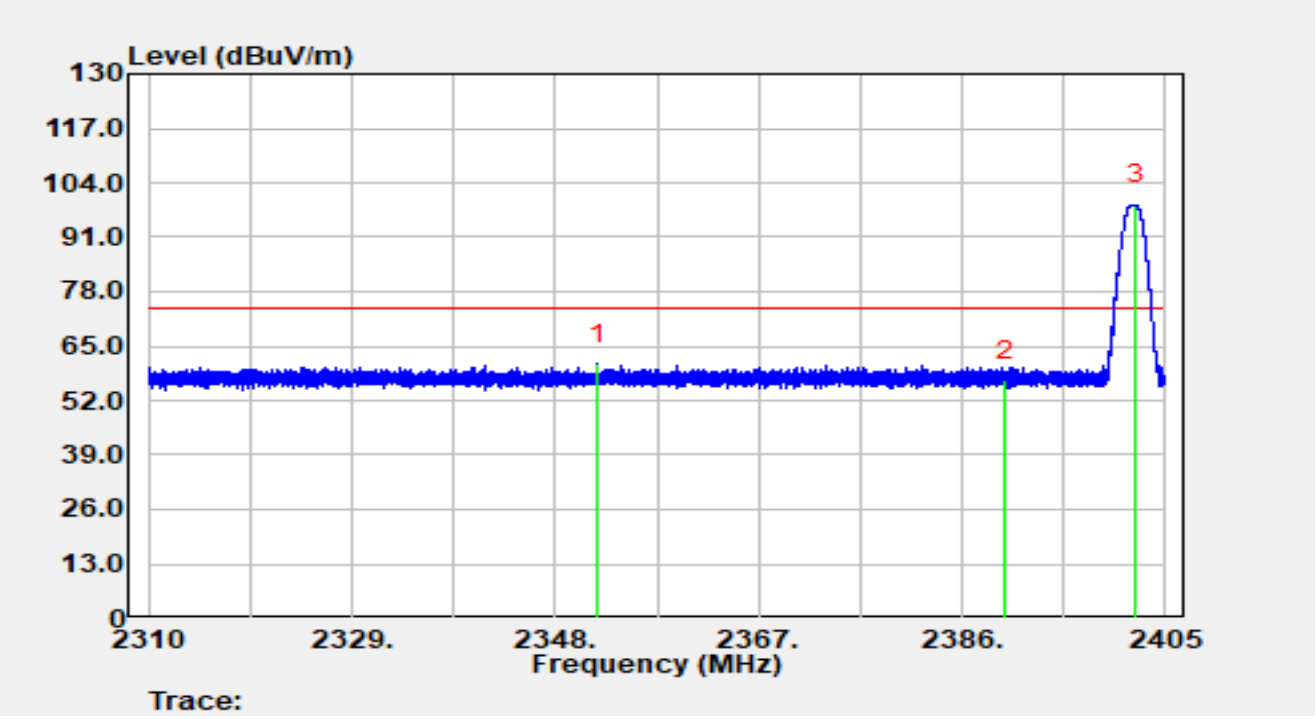
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2351.933	27.28	33.52	60.80	-13.20	74.00	Peak
2		2390.000	23.50	33.38	56.87	-17.13	74.00	Peak
3		2402.178	65.47	33.33	98.80	N/A	N/A	Peak

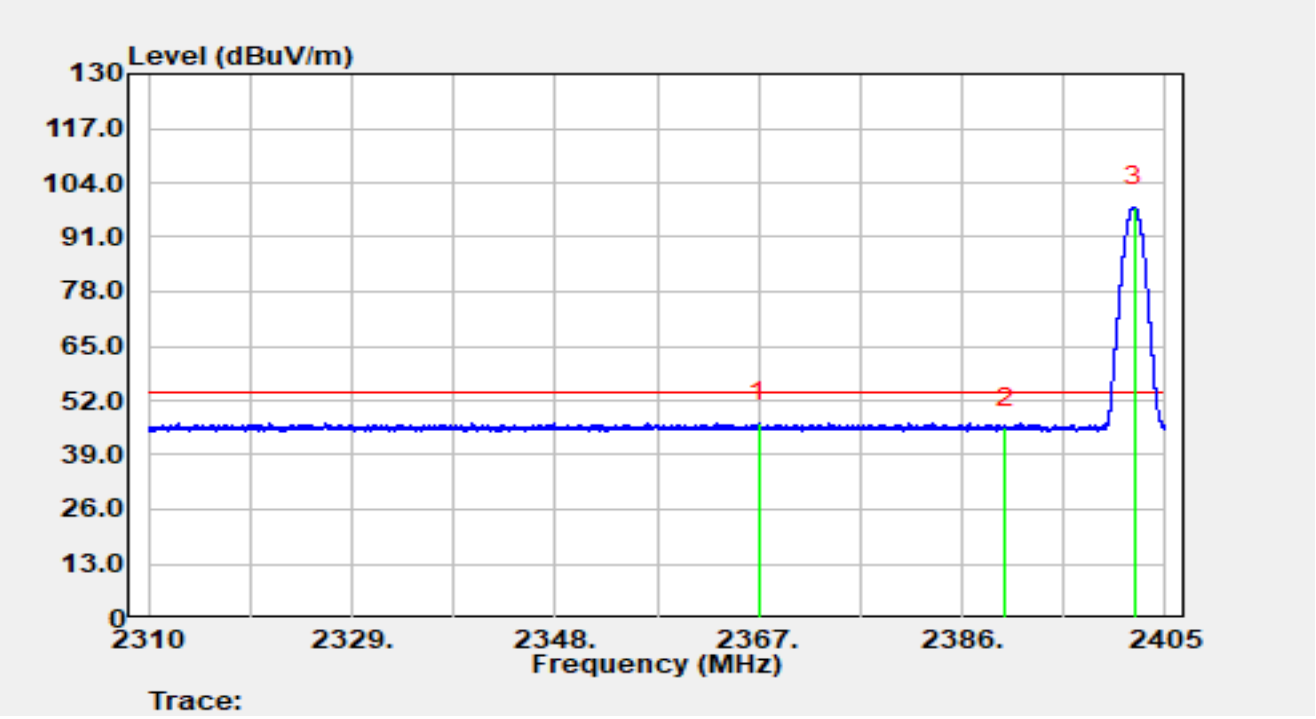
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2367.029	13.25	33.49	46.74	-7.26	54.00	Average
2		2390.000	12.21	33.38	45.58	-8.42	54.00	Average
3		2402.103	64.93	33.33	98.26	N/A	N/A	Average

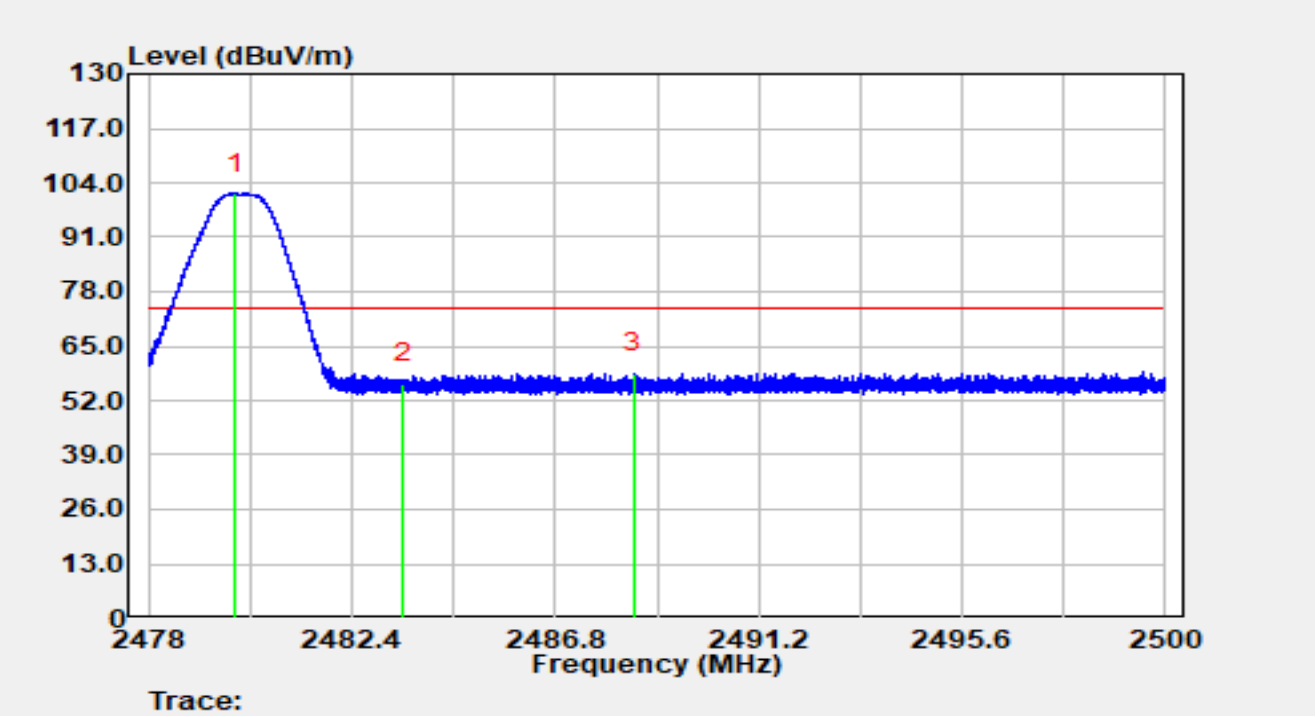
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2479.872	68.16	33.23	101.39	N/A	N/A	Peak
2		2483.500	22.73	33.25	55.98	-18.02	74.00	Peak
3	*	2488.503	25.25	33.28	58.53	-15.47	74.00	Peak

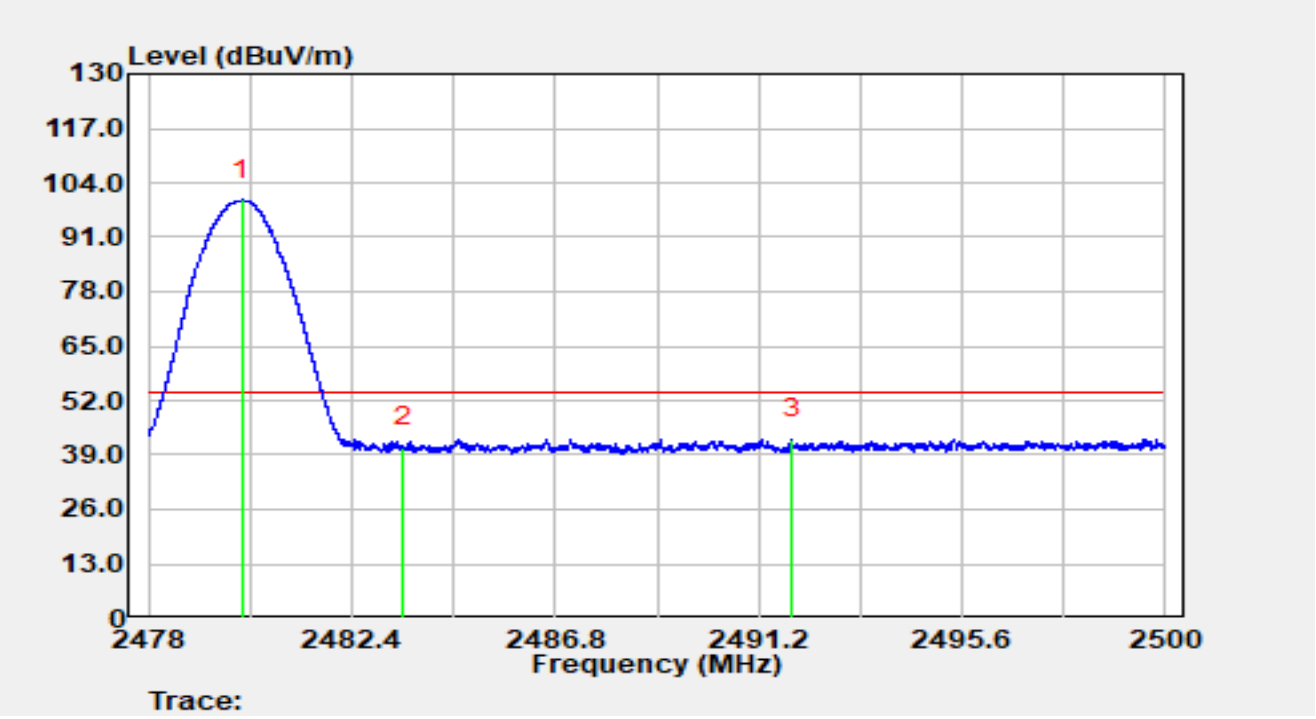
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2480.033	66.65	33.23	99.88	N/A	N/A	Average
2		2483.500	7.62	33.25	40.88	-13.12	54.00	Average
3	*	2491.911	9.44	33.30	42.74	-11.26	54.00	Average

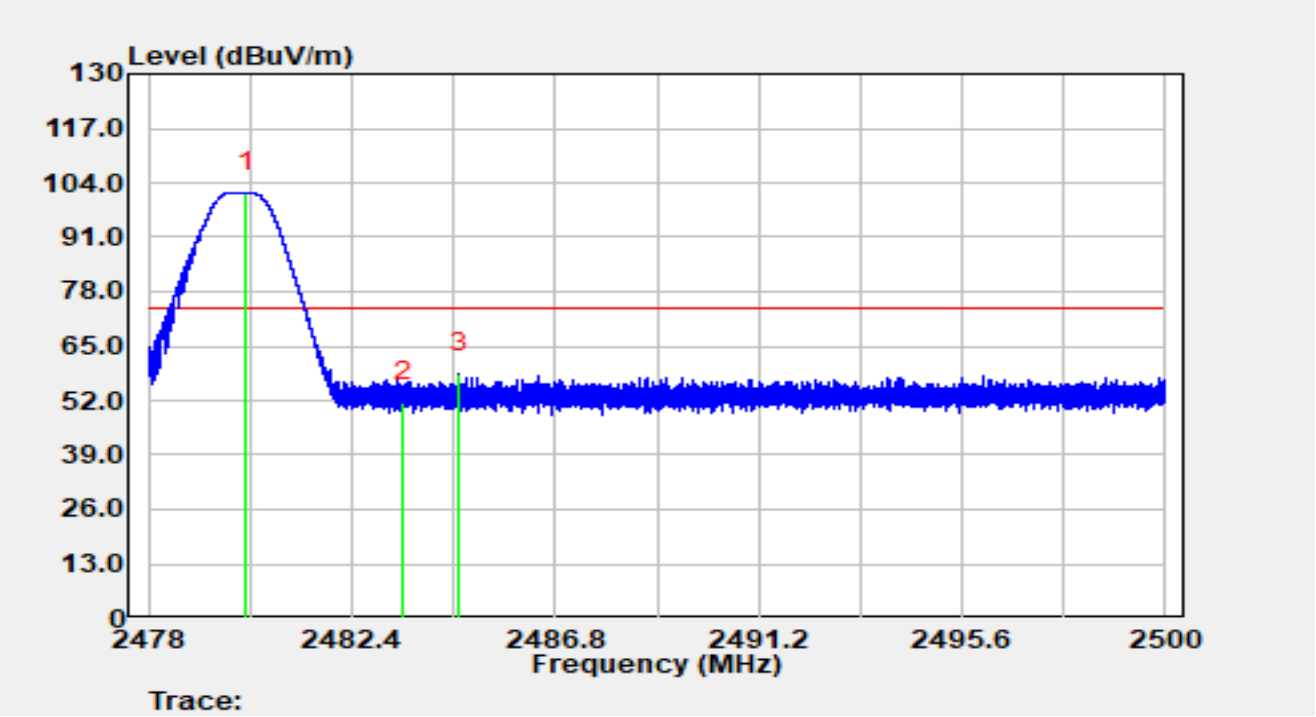
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2480.116	68.55	33.23	101.78	N/A	N/A	Peak
2		2483.500	18.42	33.25	51.67	-22.33	74.00	Peak
3	*	2484.732	25.13	33.26	58.39	-15.61	74.00	Peak

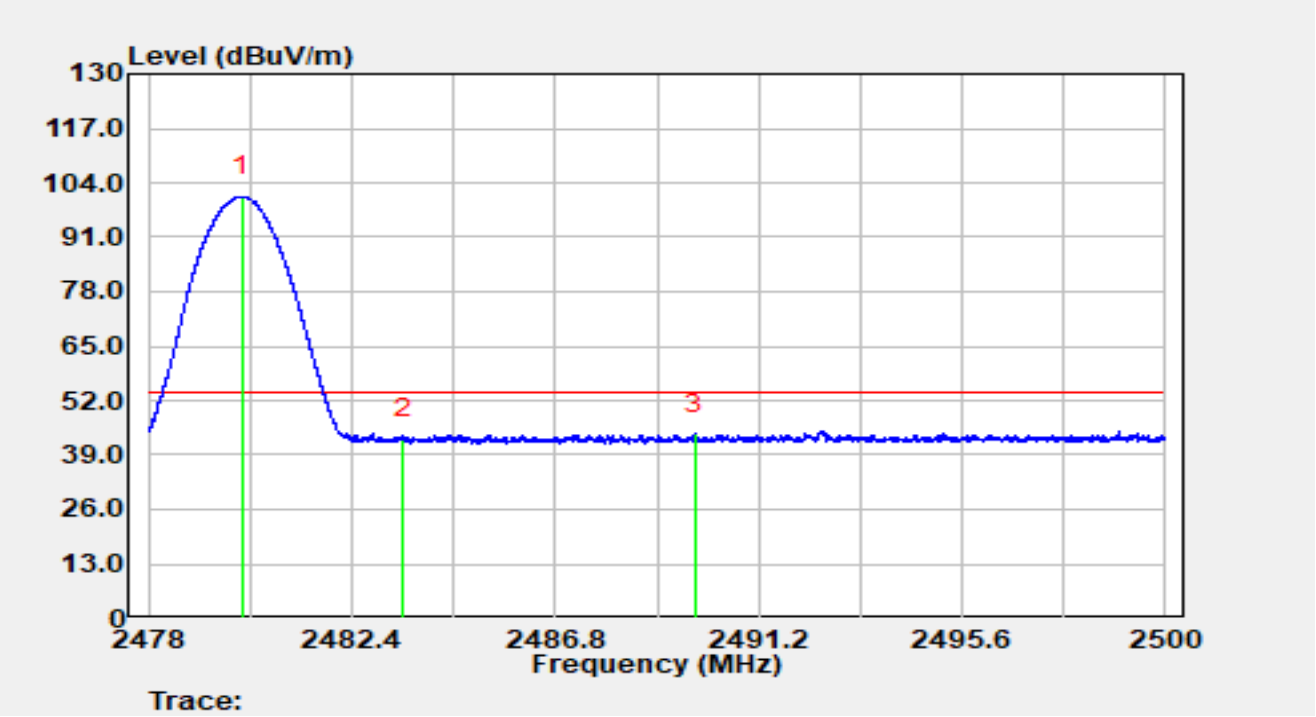
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_1M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2480.015	67.57	33.23	100.81	N/A	N/A	Average
2		2483.500	9.45	33.25	42.70	-11.30	54.00	Average
3	*	2489.816	10.72	33.29	44.01	-9.99	54.00	Average

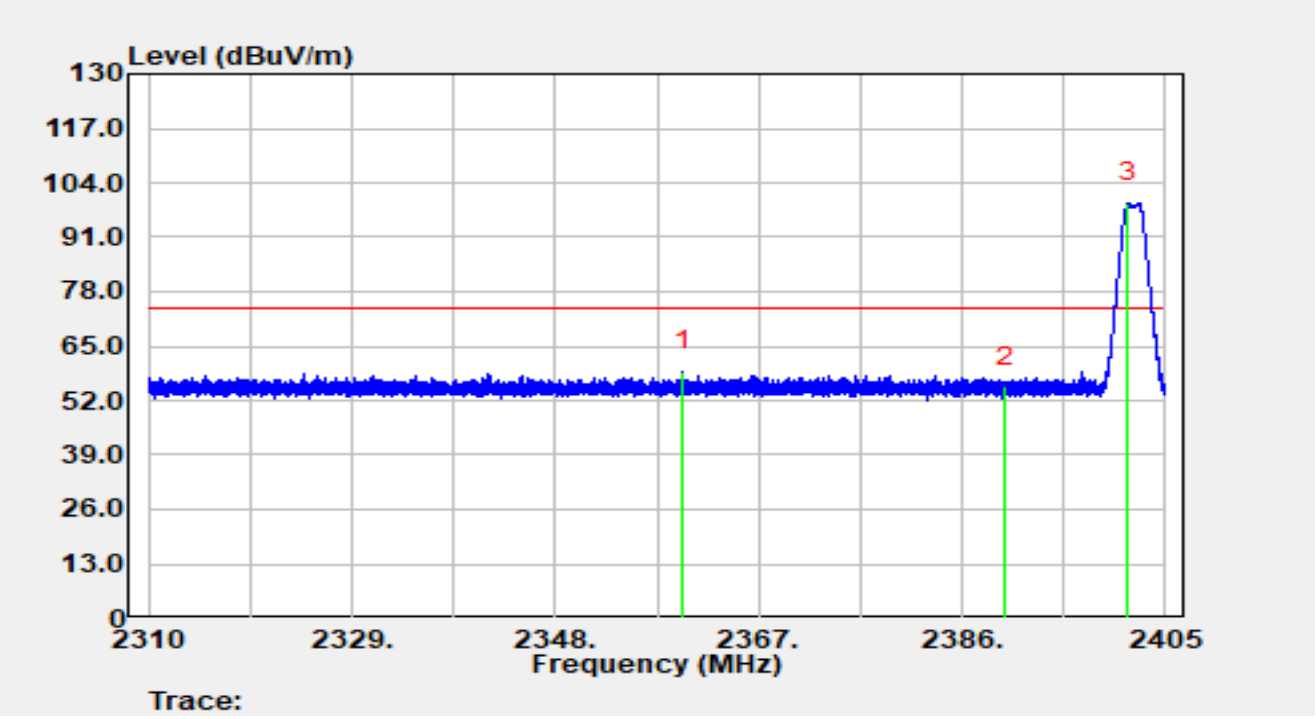
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2359.932	25.38	33.53	58.91	-15.09	74.00	Peak
2		2390.000	21.81	33.38	55.19	-18.81	74.00	Peak
3		2401.447	65.99	33.33	99.32	N/A	N/A	Peak

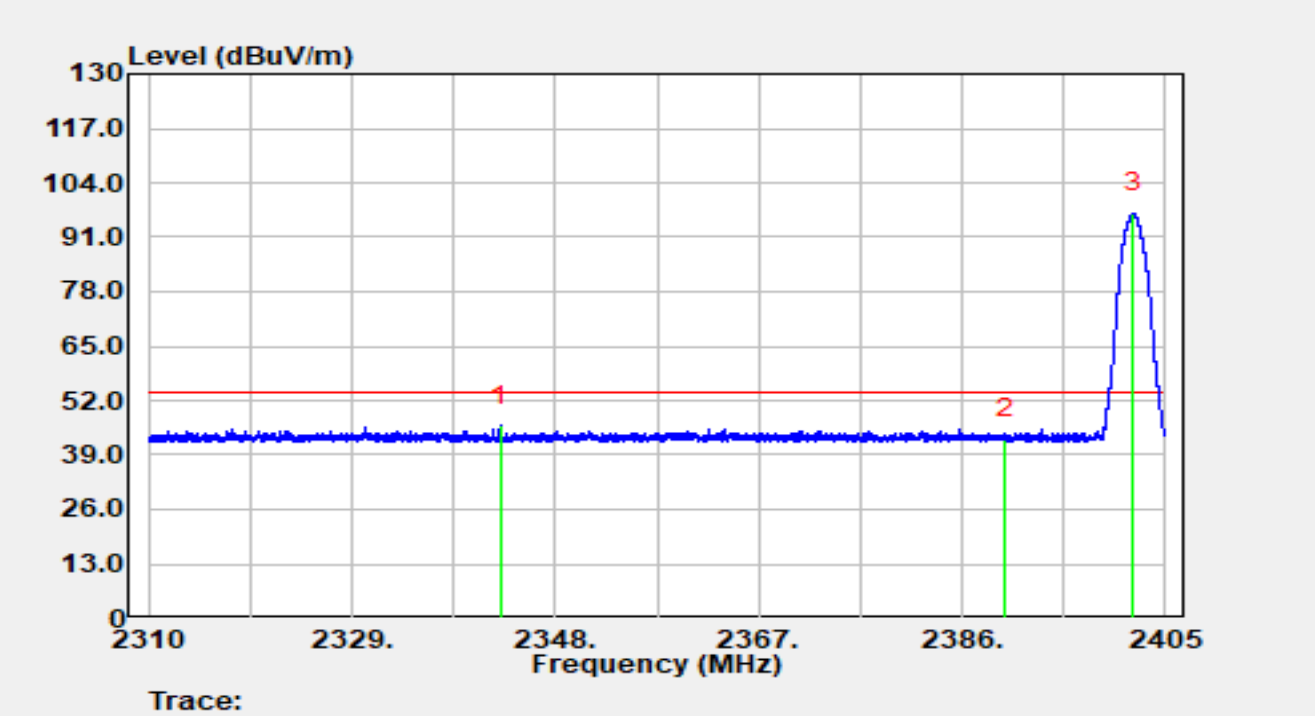
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2342.832	12.39	33.52	45.91	-8.09	54.00	Average
2		2390.000	9.43	33.38	42.81	-11.19	54.00	Average
3		2402.045	63.32	33.33	96.65	N/A	N/A	Average

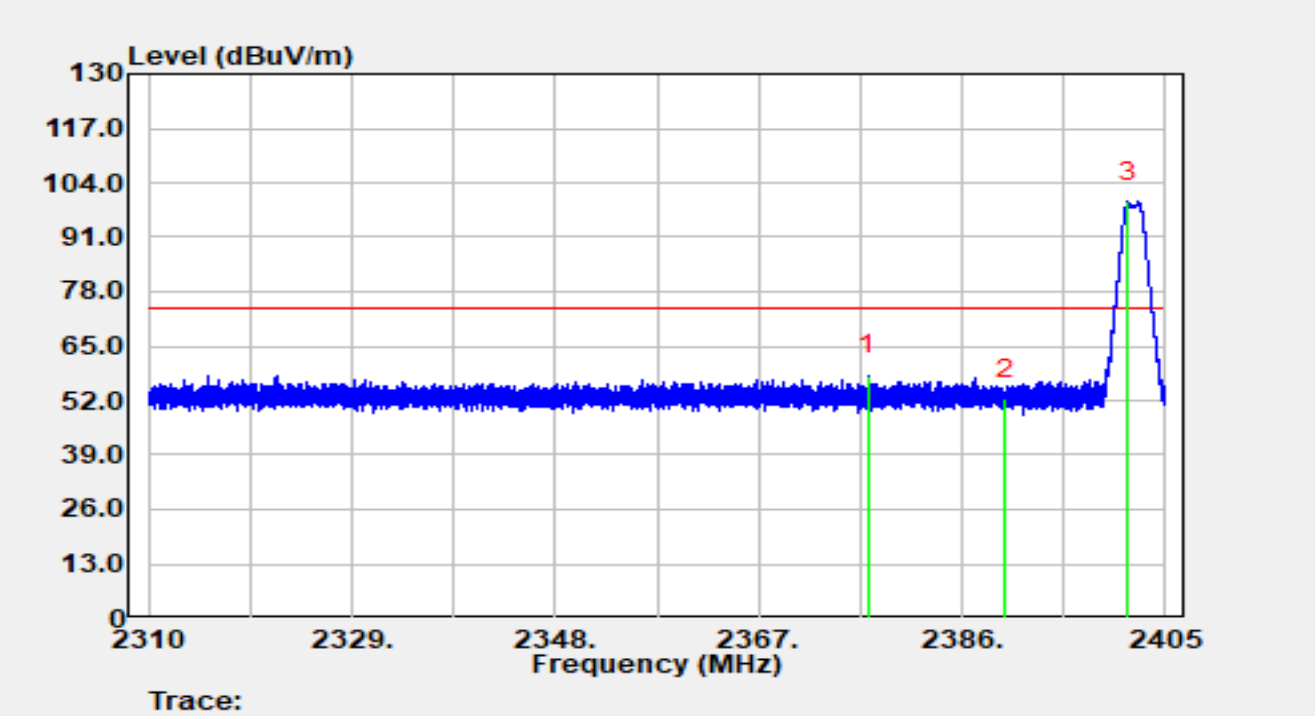
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2377.250	24.55	33.43	57.97	-16.03	74.00	Peak
2		2390.000	19.07	33.38	52.45	-21.55	74.00	Peak
3		2401.476	66.09	33.33	99.42	N/A	N/A	Peak

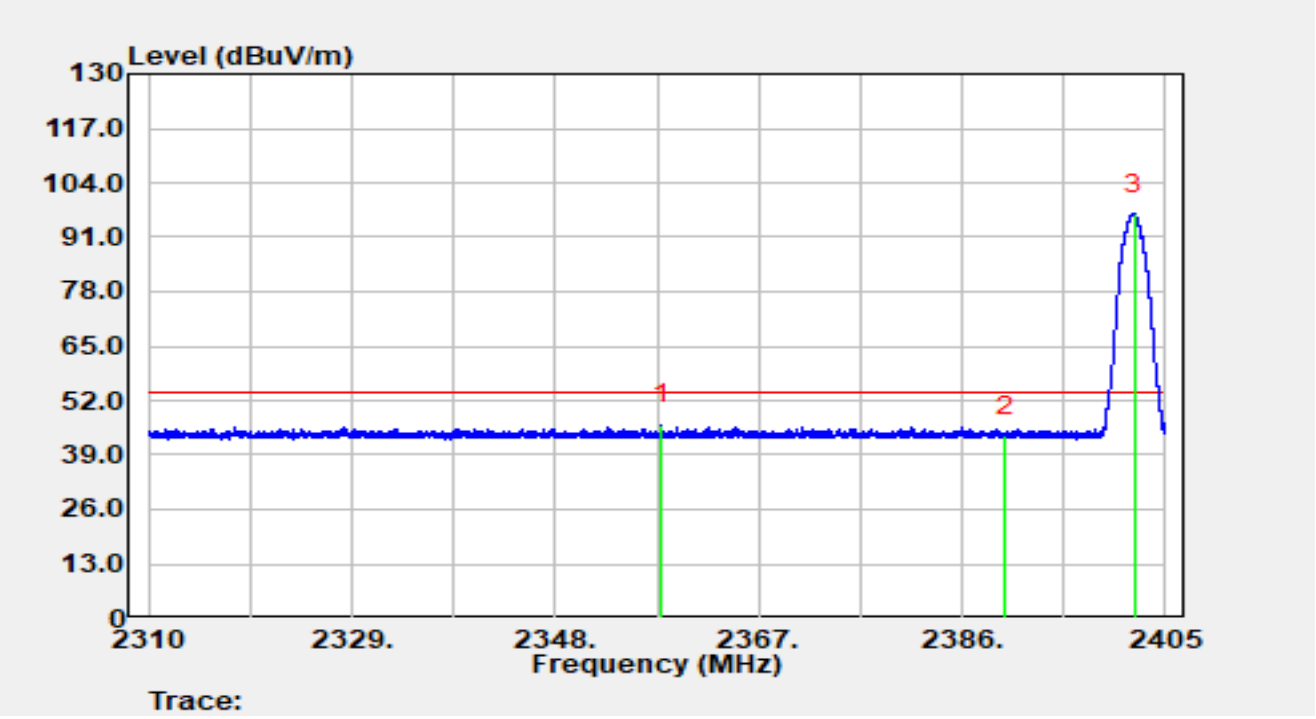
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2357.880	12.83	33.53	46.36	-7.64	54.00	Average
2		2390.000	10.18	33.38	43.56	-10.44	54.00	Average
3		2402.083	63.24	33.33	96.57	N/A	N/A	Average

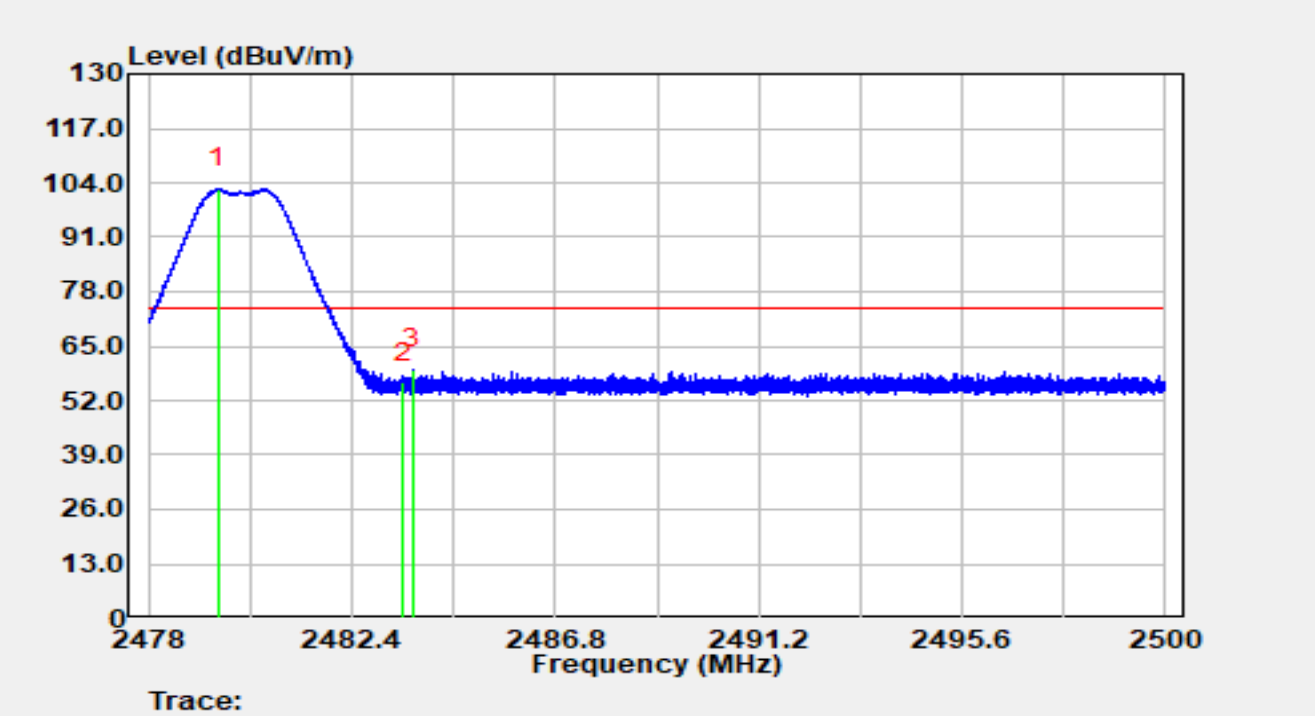
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2479.518	69.31	33.23	102.54	N/A	N/A	Peak
2		2483.500	22.96	33.25	56.22	-17.78	74.00	Peak
3	*	2483.707	26.34	33.25	59.59	-14.41	74.00	Peak

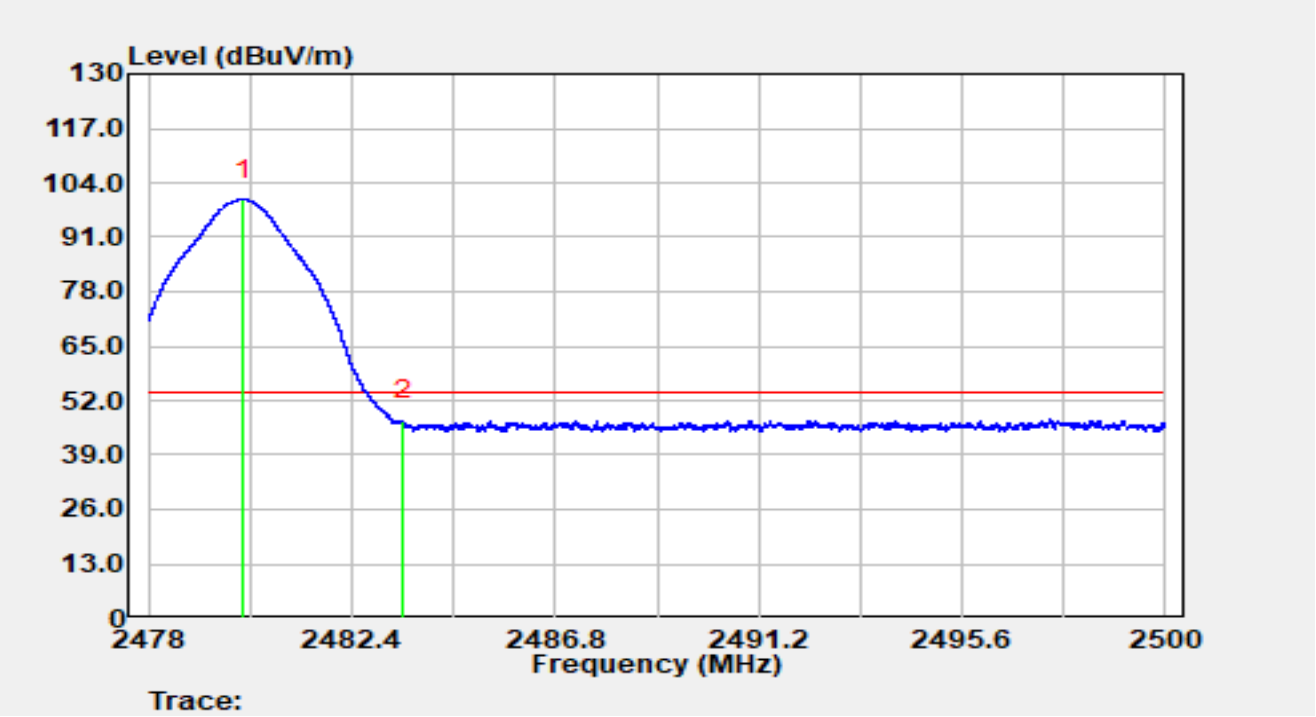
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2480.066	66.76	33.23	99.99	N/A	N/A	Average
2	*	2483.500	13.99	33.25	47.24	-6.76	54.00	Average

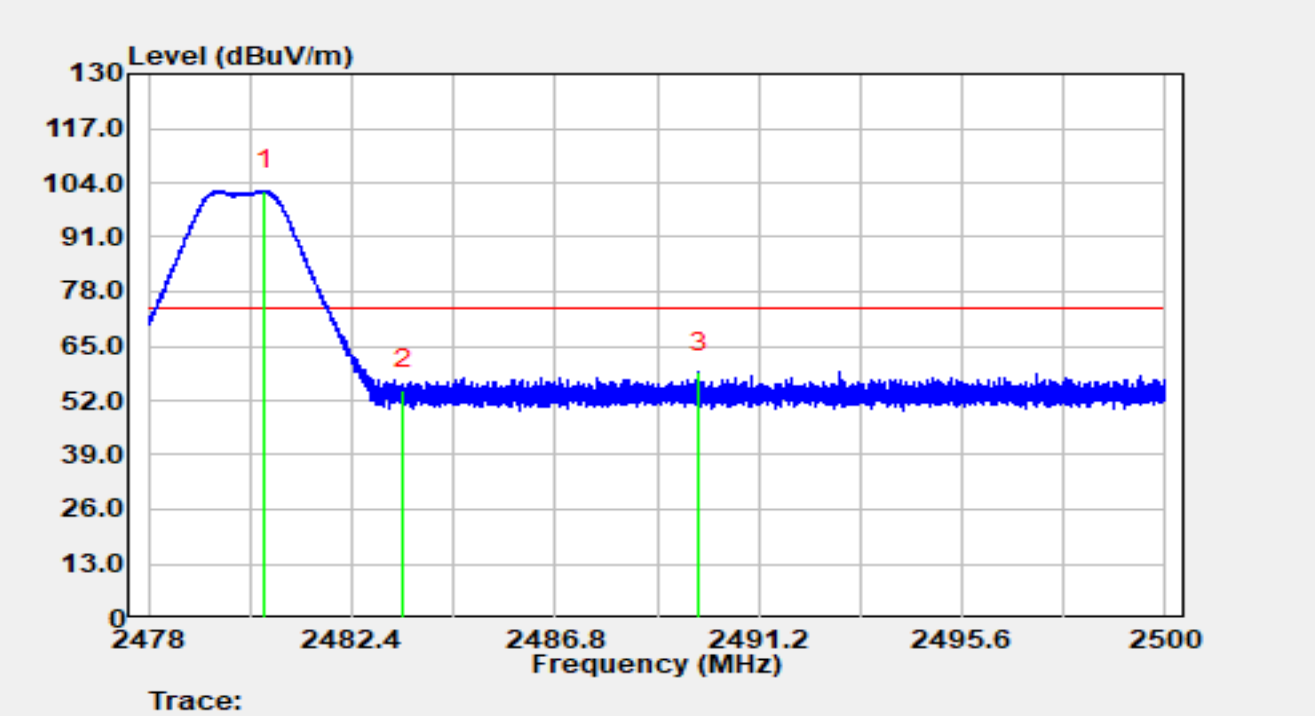
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2480.519	69.04	33.23	102.28	N/A	N/A	Peak
2		2483.500	21.39	33.25	54.64	-19.36	74.00	Peak
3	*	2489.896	25.46	33.29	58.74	-15.26	74.00	Peak

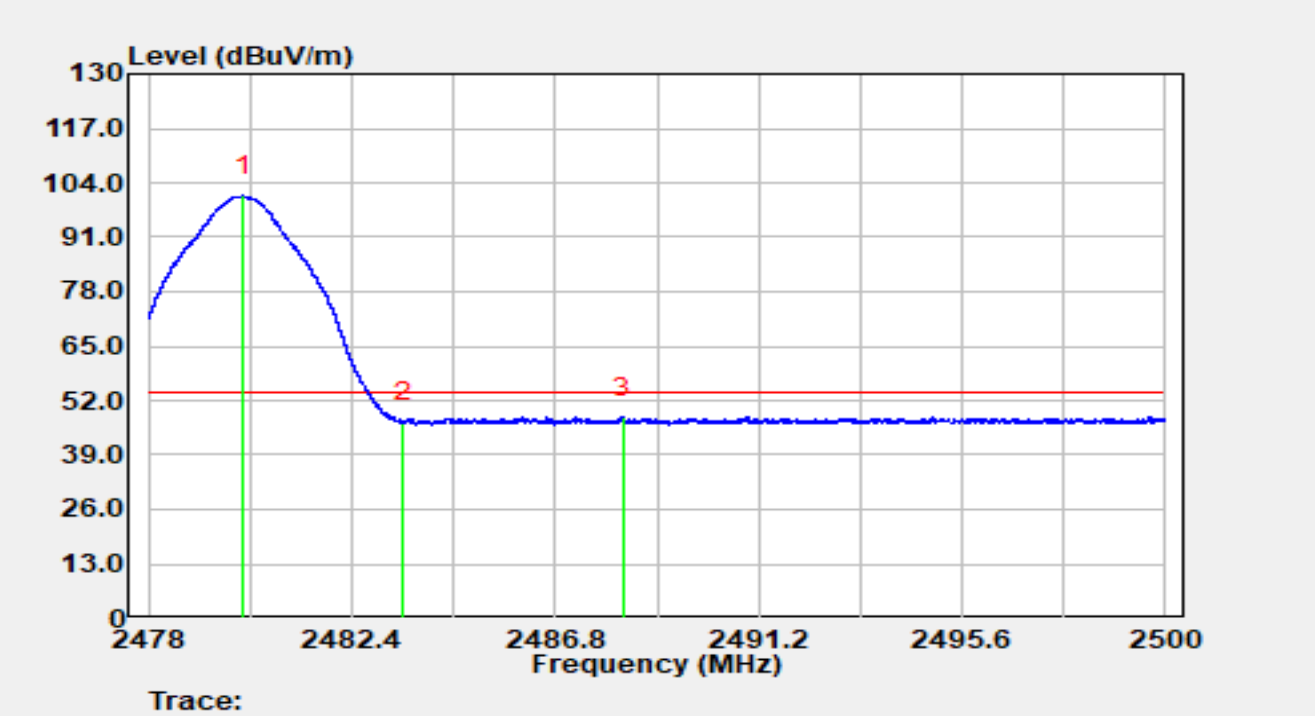
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Vertical
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_2M at 2480MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1		2480.042	67.62	33.23	100.85	N/A	N/A	Average
2		2483.500	13.39	33.25	46.64	-7.36	54.00	Average
3	*	2488.263	14.72	33.28	47.99	-6.01	54.00	Average

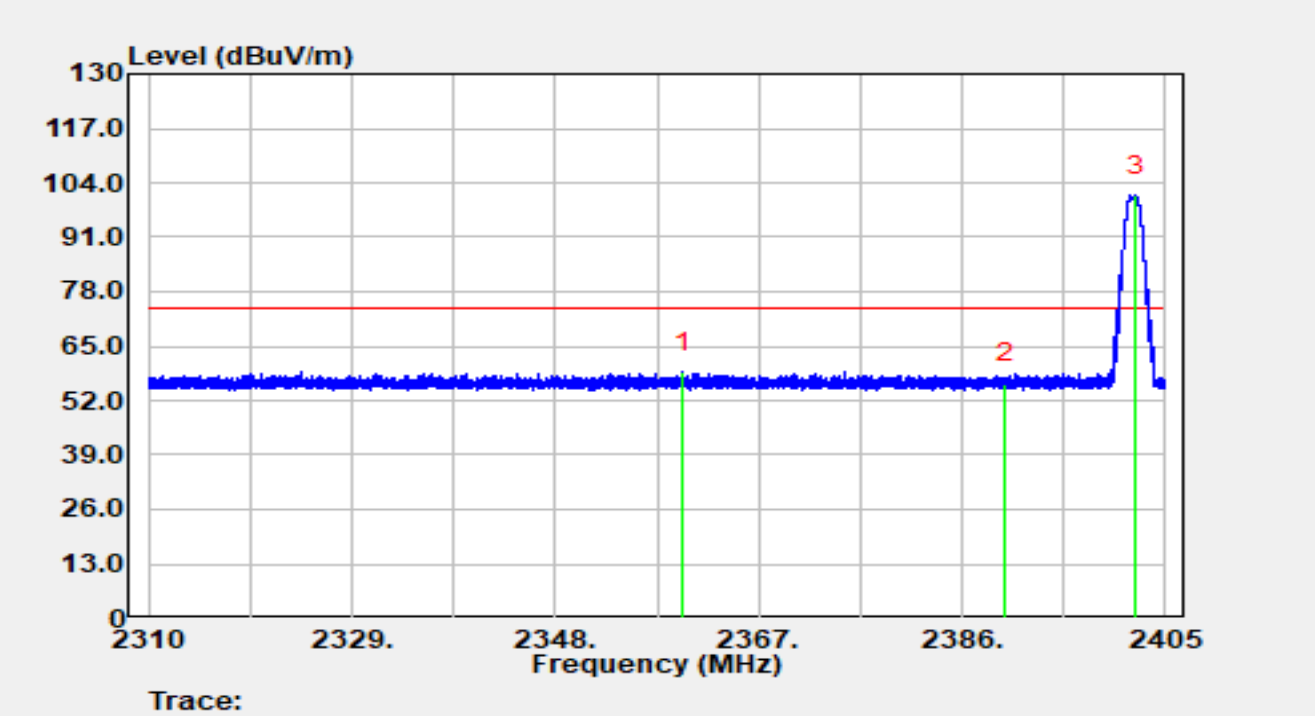
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_125K at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2359.960	25.21	33.53	58.74	-15.26	74.00	Peak
2		2390.000	22.62	33.38	55.99	-18.01	74.00	Peak
3		2402.207	67.68	33.33	101.01	N/A	N/A	Peak

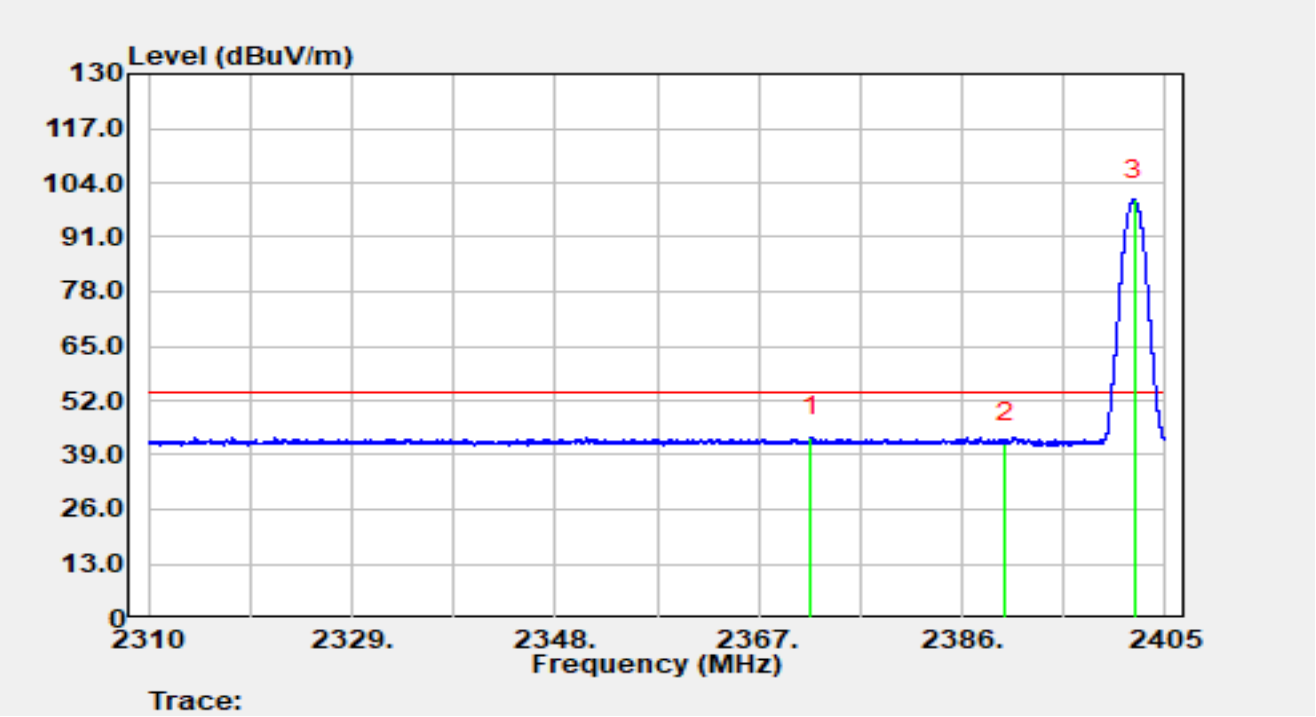
Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).

Site	SIP-AC2	Test Date	2025-06-14
Temperature	22.3°C	Humidity	61.2%
Limit	FCC_Part15_Band Edge(3m)	Test Engineer	Fusco Pan
Factor	BBHA 9120D_02042	Polarity	Horizontal
EUT	ES1 (B)	Test Voltage	AC 120V/60Hz
Test Mode	Transmit by BLE_125K at 2402MHz		



No	Mark	Frequency (MHz)	Reading (dBµV)	C.F (dB/m)	Measurement (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Detector
1	*	2371.930	9.73	33.46	43.19	-10.81	54.00	Average
2		2390.000	8.47	33.38	41.85	-12.15	54.00	Average
3		2402.055	66.62	33.33	99.95	N/A	N/A	Average

Notes:

1. “*” indicates the worst-case emission level observed during the measurement.

2. C.F (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB).

3. Measurement (dBµV/m) = Reading (dBµV) + C.F (dB/m).